with such lesions, and experience teaches us that the total fat-content of the stools, made up of fats, fatty acids, and soaps, affords a safer guide. Better still is the information supplied by the far more laborious estimation of the proportion of the fat taken in the food which is lost in the fæces. When, in addition, there is a conspicuous failure to split fats the evidence of a lesion of the pancreas is so much the more cogent. In the stools of a healthy man some 75 per cent. of the fat is in the split form, whereas some patients with pancreatic disease pass as little as 20 per cent. in the forms of fatty acids and soaps. The great diagnostic significance of true steatorrhœa arise from the fact that it indicates not only an excess of fats in the stools but also an undue proportion of neutral fat.

In cases with no gross steatorrhœa the microscope may show abundant fat globules and many acicular crystals of fatty acids. Moreover, the large bulk of the fatty stools may arrest attention, and in some cases they are justly described as elephantine.

The jaundice, which is so often associated with obstruction of the pancreatic duct, obscures, to some extent, the indications afforded by the estimation of the fæcal fats, for the mere absence of bile from the intestine causes a great impairment of fat absorption; but even when the pancreatic duct alone is blocked widely divergent results are obtained in different cases. Moreover, in the majority of cases of disease of the pancreas there is no blockage of the duct, and the impairment of secretion results from damage to the glandular tissue, and is less in degree. A patient with grave disease of the pancreas may pass stools with normal fat-content, and this is true even of some cases in which the duct is obstructed, probably because the duct of Santorini remains patent and provides an emergency outlet.

Even when jaundice is present a proportion of fats in the dried fæces exceeding 40 or 50 per cent. is strongly suggestive of a pancreas lesion, and in some cases there is a percentage of 80 or more.

L. Zoja[17] lays stress upon an unduly low proportion of soaps as indicative of pancreatic disease, presumably from a deficient supply of alkali in the intestine, but our own experience and that of others leads us to attach little importance to this sign.

Fat Excretion.

Oskar Gross,[18] who made a very complete study of the fat excretion of two patients with indubitable disease of the pancreas, found that in one case the percentage of the food-fat lost in the fæces remained constant, in spite of wide variations in the amounts in the diet, and Hurtley and I found the same to be true for our case of congenital steatorrhœa; but in Gross's second case, and in that investigated by Spriggs and Leigh,[19] the loss of fat became much greater when the fat in the diet was increased. The last-named observers suggest that the constant percentage loss may only hold good for cases in which the patient's nutrition remains good. It is a remarkable phenomenon and one not easily explained, but upon which future work may throw light.

It will be seen from what has gone before that a patient whose pancreas is diseased may pass excess of neutral fats in his motions, or a great excess of fats, fatty acids and soaps, without any undue proportion of neutral fat. Lastly, a lesion of the pancreas can by no means be excluded on the ground that the stools contain no excess of fatty substances.

Winternitz has introduced a st of the efficienc of the pancreas in dealing with fats. Half gramme of iodo-behenic acid or the drug sajodi which is its calcium salt, is given by the mouth and iodide is looked for in the urine. The sajodi is only broken up when it comes under the influence of the pancreatic juice, and by it only i presence of bile. On this account the test is no applicable when the bile-duct is completel obstructed. When there is no jaundice failure t find iodide in the urine suggests that the lipolyti action of the pancreas is in abeyance.

When, in addition to impaired splitting or utilisa tion of fats, there is obvious failure of protei digestion the evidence of a pancreatic lesion i well-nigh conclusive. There are many ways i which such failure may be detected, but th simplest of all is at the same time the most con vincing. A patient with severe pancreatic diseas will, as a rule, pass in his fæces large numbers o muscle fibres, derived from the meat which he eats undigested and with their striæ clearly visibl under the microscope. He may also pass particle of undigested tissue, and Albu[20] recommends calf' thymus as an article of diet the structure of which is easily recognised in the stools. For thi phenomenon Ehrmann suggested the nam creatorrhœa, by which it is generally called and, although the term invites criticism, it is no easy to invent a better.

Creatorrhœa.

Creatorrhœa, although it may accompany profus diarrhœa from any cause, is hardly inferior to fatt stools in diagnostic value, and it has the advantag that it is not affected by blocking of the bile-duct In a case with jaundice, in which the indication afforded by the fæcal fat are not unequivocal, th discovery of undigested striped muscle fibres i the stools may help materially to clench an otherwise doubtful diagnosis.

Cases are met with in which the syndrome steatorrhœa-creatorrhœa persists for years, in a patient who otherwise enjoys moderately good health, who leads an active life and exhibits no other gross sign of disease. Some such patients have been found to have the duct blocked with calculi and the structure of the gland destroyed and yet may never have exhibited glycosuria. In these cases the more elaborate tests will, as a rule, afford additional evidence of disease of the pancreas.

Excessive excretion of nitrogen in the stools, and a consequent inordinate loss of nitrogen as determined by metabolism investigations, affords additional evidence of impairment of protein utilisation, but other ferments besides trypsin take part in this work, and azotorrhœa, so-called, is far less distinctive than the escape of striped muscle fibres and nuclei. Moreover, the fatty stools of a patient with pancreatic disease offer a far from ideal material for Kjeldahl estimations.

Tests of Tryptic Digestion.

The majority of the pancreatic tests are concerned with the failure of tryptic digestion. T fall into three main groups of procedures. S of them aim at obtaining a sample of d contents for examination; others rely upon despatch of messengers along the alimentary and the examination of the stools or other for evidence as to what has happened to their transit; and yet others upon estimation the tryptic action of the fæces.

The oil-breakfast test relies upon the fact that under its influence some of the contents of the duodenum are regurgitated into the stomach, and may be found in the test meal when it is siphoned off. The technique of the test is comparatively simple, and its results are, as a rule, instructive, but the swallowing of a large dose of olive oil (2 oz.) with a test meal upon an empty stomach, and its subsequent withdrawal, is a proceeding which has little attraction for the British patient. It has been clearly shown that it is possible to obtain a sample of the secretion in the duodenum, either by means of a suitably constructed duodenal sound or, better still, by Einhorn's ingenious device of a small metal capsule cased in gelatin and attached to a string or to an indiarubber tube. The capsule is swallowed and is passed on into the duodenum by gastric peristalsis. It is well to check its progress by X ray examination. By this means as much as 5–10 c.cm. of duodenal juice may be obtained in favourable cases and its tryptic tivity tested. I have no experience of these ethods, and therefore am not in a position to dge of the value of the indications which they ford, nor of the degree of discomfort to the patient hich their application may entail. It is obvious at there are possibilities of fallacy, and that, hereas the finding of trypsin in the juice affords sitive evidence that pancreatic secretion is tering the duodenum, the failure to find it in e fluid obtained is far less conclusive as evidence inefficiency of the gland.

Of methods which test the tryptic power of the æces that of Oskar Gross is most often employed. t is based upon the digestion of casein by an kaline extract of the fæcal material. Failure to digest casein offers strong evidence of pancreatic nefficiency, but, seeing that other ferments in æces can act like trypsin, a positive outcome of the est, unless very pronounced, has less value.

What may be called the messenger tests are of several kinds. Thus Sahli administered capsules of gelatin hardened by formalin, and enclosing a drug easily detected in the urine or saliva. Provided that the capsule is well made it is only amenable to tryptic digestion, and escape of the drug is taken to indicate tryptic activity; but a negative finding is far from conclusive. The capsule may resist tryptic digestion, especially if its journey along the alimentary canal be unduly rapid. It is only necessary to mention Schmidt's beef cube test, and Kashiwado's in which stained nuclei from the calf's thymus are swallowed, mixed with lycopodium granules, the latter to serve as indicators of the part of the fæces to be searched. Sladden, who tried this test on several of my patients, obtained no very encouraging results, and compares the search in the bulky fæces of a patient with pancreatic disease to the proverbial hunt for a needle in a haystack. It seems to me preferable to rely rather upon such gross phenomena as creatorrhœa and steatorrhœa as indicators of inefficiency of the pancreas, than upon the somewhat uncertain responses of these messenger tests.

Carbohydrate Digestion.

To pass on to the consideration of carbohydrate digestion: It was shown by Wohlgemuth, whose observations have been abundantly confirmed, that diminished output of diastase in the stools, and an increase of that enzyme in the blood and urine, are common phenomena in cases of lesion of the pancreas, and it would seem that we are here dealing with a sort of colourless jaundice, due to an obstructed flow of the pancreatic juice into the intestine, or else to a direct escape of diastase into the blood, comparable to that of lipase, which brings about fat necrosis. But there are indications that the explanation of neither of these events may be so simple. However this may be, the estimation of diastase in the urine affords one of the best and most useful tests of the integrity of the pancreas, and at the same time one of those most easily and rapidly carried out. This last is an important matter when we are dealing with acute conditions, in which delay of surgical interference may greatly lessen the prospect of its success. The diastase and adrenalin mydriasis tests may be carried out within an hour, whilst the patient and the theatre are being prepared for an operation. But the diastase test shares the uncertainty which pertains to pancreas tests in general. Instead of the normal 10 to 20, or even 30, units, to use the accepted measures of the test, a patient with pancreatic disease may excrete in his urine 50, 100, or even 200 units. On the other hand, another patient similarly affected may show a normal diastase excretion. Mackenzie Wallis emphasises the fact that the diastase increase is a temporary incident, most conspicuous in the earlier stages of a case. Repeated examinations at intervals may reveal a quicker or slower decline of the diastase output until normal, or even subnormal, figures are reached. Thus it comes about that whereas a conspicuous excess of diastase in the urine is strongly suggestive of disease of the pancreas, a normal excretion, such as was found by Spriggs and Leigh in their case, in no way excludes even advanced disease of that gland.

Nor must it be forgotten that in many cases of renal disease the power of the kidney to excrete diastase is so seriously impaired that its estimation in the urine is utilised as a test of renal efficiency. This deprives the indications of most of their value, for our purpose, in cases with albuminuria. Again, like Loewi's reaction, the diastase test errs on the side of excessive delicacy. Both tests may give positive answers when, so to speak, the pancreas is merely worried by adjacent disease. Thus, when both these tests yield positive findings, strong evidence, stronger by far than either alone supplies, is afforded that the pancreas is at least concerned in the malady; but, apart from other indications, they are in no way conclusive. Of the two, I attach greater importance to the diastase findings. Undoubtedly the failure of both tests in no way excludes serious pancreatic mischief.

The Evidence of Failure of Internal Secretion of the Pancreas.

There remains to be considered the evidence of failure of internal secretion of the gland. Since the classical researches of von Mehring and Minkowski glycosuria has occupied a foremost place among the signs of pancreatic lesions, but from the clinical standpoint it is far from fulfilling the promise held out by physiological experiments. Whereas it is highly probable that the pancreas is concerned in all cases of glycosuria, save perhaps those in which the proportion of sugar in the blood is below the normal, it may well be that in most cases of diabetes the hyperglycæmia and glycosuria result from a disturbance of the normal balance between the pancreas and other endocrine glands, with the result that its internal secretion is inhibited or overpowered. We know that an excess of thyroid secretion may cause glycosuria although the pancreas be intact, and the same holds true for pituitary secretion and adrenalin.

On the other hand, experiments show that a small residue of pancreatic tissue may avert glycosuria, and it is a matter of common knowledge that the gland may be gravely damaged, and even to all appearance destroyed by disease, and yet the patient may excrete no sugar in his urine. Indeed, it may be said that, except in cases of chronic pancreatitis, glycosuria is an uncommon symptom of pancreatic disease. I am inclined to think that daily observations throughout the illness would reveal the presence of sugar in the urine at times in many more cases than appears at present. In an acute case I have met with it in one single specimen, and never afterwards. In cases of carcinoma of the head of the pancreas glycosuria is less rare than might be expected, seeing how large a part of the gland usually escapes invasion and how little time is afforded for the development of secondary changes. Miraillé[21] found it in 13 out of 50, and Guillon[22] in 20 out of 71 cases.

Speaking generally, the absence of glycosuria affords no argument against the presence of disease of the pancreas, but in not a few cases its presence supplies the crowning evidence in support of a diagnosis based upon other findings. Lastly, even those who attribute all diabetes to disease of this gland will hardly maintain that the presence of glucose in the urine is in itself sufficient evidence of such disease. Even in chronic interstitial pancreatitis glycosuria is by no means always present, and Opie[23] attributes the difference in this respect to differences in the incidence of the lesion, which in some cases involves, and in others spares, the islands of Langerhans.

Short of actual glycosuria, the patient's tolerance for glucose may be so far lowered that quantities of that sugar, far smaller than are required to induce glycosuria in a healthy subject, cause glucose to appear in the urine. Thus tests of sugar tolerance are among the diagnostic means at our disposal, but it must be remembered that almost any disturbance of the balance of the internal secretions leads to an alteration, either a raising or a lowering of glucose tolerance.

Cammidge's reaction, which may be fitly referred to in this place, is a phenomenon of much interest, the further investigation of which may throw light upon important metabolic events. It is undoubtedly connected with pancreatic derangements, and when observed supplies a contribution to the building up of a diagnosis. But it shares he uncertainty of other pancreatic tests, and may il us in cases of severe disease of the gland, specially when the disease has reached an advanced stage. So it is natural that many prefer to employ methods which are less time-absorbing, and less at the mercy of small errors of technique. This test has suffered from the fact that too much has been expected from it, perhaps that too much has been claimed for it; and because it has not proved so decisive as was hoped, its utility has not received the credit which it deserves. Of Cammidge's iodine coefficient method, which is a development of his original test, I have had no experience.

Diagnosis of the Nature of the Lesion.

In this survey of the methods at our disposal for the diagnosis of lesions of the pancreas I have presented to you the separate pieces of a jig-saw puzzle. Only when the several pieces have been fitted together can we form a distinct clinical picture of pancreatic disease. Nor must we forget that when we have determined the seat of a lesion we have attained to only half of a diagnosis. We need to diagnose the nature of the lesion also, and as it happens this is often, in the conditions under discussion, the less difficult problem of the two.

In the endeavour to diagnose the nature of the more common diseases of the pancreas, such as acute pancreatitis, carcinoma, cysts, and chronic interstitial pancreatitis, we rely mainly upon the evidence afforded by physical signs and symptoms. Here clinical experience, when fortified by the experience gained in the post-mortem room, is our best guide, although we may derive no little help from the grouping of the responses of the various tests. Even pancreatic calculi have been diagnosed and removed with success; but it is probable that there will long remain a residuum of cases in which we have reason to believe that the pancreas has been damaged by disease, but in which the nature of the lesion cannot be determined with any degree of accuracy.

In order to illustrate some of these aspects of my subject it will be necessary to place before you brief records of a few characteristic cases, and to indicate the steps by which a diagnosis was arrived at in each instance. The examples chosen were wholly unlike in their general features, and had little in common beyond the fact that in all but one of them the pancreas was, or is, undoubtedly implicated in disease. Each one illustrates some special diagnostic points.

CASE 1.—A man, aged 50 years, a street salesman, was admitted to hospital complaining of abdominal pain. Seven weeks previously he had been thrown from a van, struck his head and abdomen, and was rendered unconscious for a short time. After the accident he suffered from severe pain in his back and vomited each morning. Three days later he returned to work, although he felt very unwell and the vomiting continued. A fortnight before his admission he noticed swelling of the upper part of the abdomen, and was obliged to loosen his belt. Five days later he was seized with a violent pain, of sudden onset, with sweating and collapse. The pain was relieved by hot fomentations. From that date the abdominal swelling increased, the vomiting persisted, his bowels were confined, and he suffered much from thirst. He was brought to the hospital after a second attack of severe abdominal pain. The man's appearance was suggestive of grave illness; his expression was anxious, his skin moist, and there was a slight degree of cyanosis. His temperature was only 99°, his pulse 110, and respirations 24 in the minute. Situated in the upper part of the abdomen, midway between the xiphoid cartilage and the umbilicus, was an ill-defined elongated mass, overlapped in part by the gastric resonance. A band of resonance, an inch and a half wide, separated the mass from the hepatic dullness. The tumour did not move with respiration, and no fluctuation could be made out. The abdomen was somewhat distended, but the muscles were not rigid. There was no fre fluid in the abdominal cavity. The patient complaine of severe pain in the back, across the lumbar regio The mass was very tender, but the greatest tendernes was over the left flank.

It is worthy of note that there was exophthalmos slight degree; von Graefe's sign was pronounced, a he wrinkled his forehead very little when he loc upwards. A well-marked tache could be elicited, there was no tremor of the hands. The physical si and symptoms pointed to a subacute pancreati following the injury to the abdomen, and wh specimen of urine was obtained, and found to con sugar, little doubt remained as to the correctness of diagnosis. My colleague, Mr. Waring, saw the pati with me and concurred, and an operation was deci upon. Meanwhile, Dr. Graham estimated the sugar in the blood at 0·21 per cent.: Loewi's reaction was positive, but not of an extreme degree, and Dr. Mackenzie Wallis found 50 units of diastase in the urine. At the operation the diagnosis was confirmed. The pancreas was explored and drained. The man lived six weeks after the operation. On the third day Moebius's sign was present, and von Graefe's persisted, but all the eye signs disappeared before the end. A second specimen of urine, obtained before the operation, contained no sugar, and none was found at any subsequent examination.

CASE 2.—In March, 1919, a carman, aged 59, was admitted to my wards deeply jaundiced, and with a history of three months' illness. On examination, his liver was found to be greatly enlarged and of smooth surface; the gall-bladder was not palpable. Some enlarged glands were felt in the abdomen. Occult blood was found in the stools, but urobilin was wholly absent; signs which suggested that a malignant growth had occluded the bile-duct. Although the clinical features were so unlike those of a classical case of carcinoma of the head of the pancreas, so well described by Bard and Pic,[21] in that the liver was so large, the gall-bladder was not palpable and the patient was neither emaciated nor unduly feeble, the possibility of such a growth was considered, as also that of a malignant growth originating in the bile-ducts. It soon became evident that wherever the growth started, the pancreas was implicated, and for the following reasons. Adrenalin caused a conspicuous mydriasis on several occasions; the urinary diastase amounted to 125 units; the total fats of the fæces constituted no less than 70 per cent. of the dried material, and many undigested striped muscle fibres were seen in the fæces. A week after his admission sugar appeared in the patient's urine for the first time, and the glycosuria persisted until his death. The average daily output of glucose was about 35 g. The fat content of the fæces, which was far greater than the jaundice could explain, increased as time went on, whereas the urinary diastase fell gradually from 125 to 60, 25, and 30 units, figures scarcely above the normal. The patient died after he had been in hospital two and a half months. At the autopsy carcinoma of the head of the pancreas was found: there were no secondary growths in the greatly enlarged liver, which had completely hidden the gall-bladder, which latter, although greatly distended with bile, had never been palpable during life.

CASE 3.—The next case to which I shall refer could not be subjected to any systematic investigation. A man, age 53, was first seen by me in October, 1910, at the request of his medical attendant, Dr. Robbs. His complaint was that for six months past he had passed oil with his stools, which became solid fat on cooling. In 12 months he had lost a stone of weight. He suffered no pain of any kind. Nothing abnormal could be found on examination of his abdomen; his liver was just palpable; there was neither fullness nor tenderness in the region of the pancreas, and there was no jaundice. His urine contained neither sugar nor albumin.

When I saw the patient again, in June, 1913, he had lost another stone but had developed no fresh symptoms, and his urine was still free of sugar. He was still able to lead an active life. Loewi's test gave no mydriasis, and the urinary diastase did not exceed the normal. Dr. Cammidge examined his urine and fæces in January, 1914, and obtained a positive reaction with his test. The total fat in the dried fæces amounted to 51·2 per cent., and of this only 4 per cent. was in the form of soaps. There was obvious creatorrhœa with many undigested muscle fibres in the stools, and by means of Gross's test casein digestion by fæcal material was found to be very incomplete. Dr. Robbs tells me that now, in 1920, the patient's health is better than for some time past, and he has gained seven pounds of weight during the past six months.

CASE 4.—The last case is that of a Belgian refugee, aged 32, who was admitted to my wards in January, 1915. For three years he had been liable to paroxysmal attacks of pain, referred to the region between the xiphoid cartilage and the umbilicus. During the attacks, which were obviously very severe, the patient assumed a position of opisthotonos, but he never vomited. It was suspected that he might have a pancreatic calculus, but the X rays showed no shadow in that region. Loewi's reaction was conspicuously positive, and the urinary diastase was at first 100 and afterwards 50 units. There was no excess of fat in the stools, no glycosuria, and only 0·12 per cent. of sugar in the blood. Thus the only indications of pancreatic disease were the position of the paroxysmal pain, the excess of diastase in the urine, and the adrenal mydriasis. Our investigation of his symptoms was much hampered by the fact that he spoke only Flemish and a very few words of English.

A month after his admission he passed a large tarry motion. A few days later Mr. Waring performed gastro-jejunostomy. A few days after the operation the patient developed broncho-pneumonia, with maniacal delirium, of which he died. At the autopsy a chronic ulcer was found in the second part of the duodenum, three-quarters of an inch in diameter and adherent to the pancreas and adjacent structures. The note describes the pancreas as normal to the naked eye.

If we review these four cases we notice how widely different were the clinical pictures which they presented. In the first case the diagnosis rested mainly upon the clinical signs and symptoms, but several tests of pancreatic efficiency supported the clinical diagnosis. In the second case, that of carcinoma, the evidence of a lesion of the pancreas rested largely upon disturbances of the external and internal secretion of the gland, but was quite conclusive. The only point in doubt was the primary seat of the growth. Except the intense jaundice the clinical signs did not afford much help.

In the third case the associated steatorrhœa and creatorrhœa leave no doubt that the patient is suffering from a severe pancreatic lesion, and Cammidge's test gives further support to this view. Presumably the duct is obstructed, and the pancreas is the seat of interstitial changes. The absence of pain does not exclude the presence of calculi. The failure of the adrenalin and diastase test in no way invalidates the diagnosis. The case resembles one described by T. J. Walker,[27] of a patient whose steatorrhœa persisted from the age of 62 until his death at the age of 90; whose pancreas was found to be completely obsolete and replaced by fat, and the duct was studded with calculi. In cases in which a like syndrome is presented with glycosuria in addition the patient's health is much more seriously impaired, and the prognosis is far more unfavourable.

In the last case, that of the Belgian, we can hardly escape the conclusion that the disturbance of the pancreas by the adjacent ulcer was the cause of the increase of urinary diastase and of the adrenalin mydriasis.

In a case of bronzed diabetes, which has been described at length elsewhere,[26] we employed several pancreatic tests. Of these, Loewi's test, Schmidt's beef-cube test, and the glycosuria all pointed to implication of the pancreas, whereas Cammidge's test, the estimation of fat in the fæces, and the determination of the tryptic and diastatic activity of the stools gave no indication of damage to that gland. After death the pancreas was found to be fibrotic and loaded with iron-containing pigment.

In the case of congenital steatorrhœa, on the other hand, there was no creatorrhœa, the fæces digested casein; Sahli's capsule test and that of Schmidt, a normal diastase content of the urine, and the absence of adrenalin mydriasis, all tended to acquit the pancreas. Cammidge's test alone, kindly carried out by its author, was found to give a "slightly positive result."

TABLE II.

Case.		Loewi's test.	Fatty stools.	Creatorrhœa.	Casein digestion test.	Sahli's test.	Schmidt's test.	Urinary diastase.	Glycosuria.	Jaundice.	Cammidge's test.
1	Subacute pancreatitis.	+	–	–	–	–	–	+	+	0	–
2	Carcinoma of head of pancreas.	+	+	–	–	–	–	+	+	+	–
3	? Blocked duct. Chronic pancreatitis.	0	++	–	+	–	–	0	0	0	–
4	Duodenal ulcer adherent to head of pancreas.	+	0	0	–	–	–	+	0	0	–
5	Bronzed diabetes. Chronic pancreatitis.	+	0	?	0	–	+	–	+	0	0
6	Congenital steatorrhœa.	0	++	0	0	0	0	0	0	0	?

+ signifies positive. 0 signifies negative.
– signifies not tried. ++ signifies true steatorrhœa.

It will be evident, from all that has gone before, that practically every sign, symptom, or test may fail us at times, and that in each individual case we need to balance the quantity and quality of the evidence for and against a lesion of the pancreas. In a word, we come back to Wardell's statement of 1871. It is still true that "no symptoms are pathognomonic of pancreatic disease; an assemblage of symptoms points to the probability of its lesion." But we have at our disposal a far greater assemblage of symptoms than Wardell had, and in not a few cases the degree of probability is not to be distinguished from certainty.

That is as much as can be expected when we are dealing with a problem, the solution of which rests so largely upon circumstantial, rather than direct, evidence. If we cannot claim for the diagnosis of pancreatic disease the clear cut, direct answers obtained in some other regions of clinical medicine and surgery, we may none the less regard with complacency what has, so far, been accomplished in this field, by the application of physiological discovery at the bedside, by the coöperation of the laboratory and the ward.

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RADIOLOGY IN CHRONIC INTESTINAL STASIS.[1]

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WHEN the value of radiology in medicine was recognised its aid was sought in the diagnosis of disorders of the stomach and intestines, and it became necessary to define the normal. At first sight this appeared a simple matter. The passage of an opaque substance through the stomach and bowels of a few healthy subjects was observed, and results recorded. In practice, however, two difficulties presented themselves: (1) The text-books of anatomy represented certain shapes and positions as normal, whereas the X ray pictures showed pronounced differences, notably in regard to the stomach and transverse colon; and (2) it was found that great differences existed in the size and position of organs in people, apparently in perfect health. At Guy's Hospital an investigation was made to determine the normal; the members of the football-team were selected as likely to be ideally healthy men. They were given a bismuth meal, and the observers were astonished to find that in most of them the transverse colon had dropped so low that its middle lay in the pelvis. The observers rashly concluded that the position of the transverse colon was of no significance. This statement no one would make to-day. Recently Professor Arthur Keith invited me to address the Anatomical Society, suggesting as my subject "The Radiology of the Normal Cæcum." Feeling incompetent to instruct or even interest the Anatomical Society on this topic, I asked to be allowed to alter my terms of reference so as to read "The Displaced Cæcum," and to this Professor Keith generously consented. When, however, the day of the meeting came, I found that the title of my paper was that suggested originally, "The Normal Cæcum." I was compelled to state as my opinion that there was no such thing, strictly speaking, as a normal cæcum. If, however, I must admit a form of cæcum to be the normal, then it must be the embryonic cæcum—conical, with the appendix forming a direct continuation of the apex of the cone, and the three longitudinal bands, or tæniæ, arising at the base of the appendix and spaced symmetrically around the circumference of the bowel. As soon as the cæcum begins to fill up with solid fæces—i.e., at birth or soon after—the pressure of its solid contents gives rise to sacculation. The saccules make the cæcum protrude between the tæniæ, forcing them apart. Thus at once the cæcum begins to lose some of its efficiency as an organ of propulsion. The loss of efficiency is slight in ordinary cases, but becomes serious if, in later years, stasis causes exaggerated sacculation of the cæcum.

Effect of Civilisation.

In man the brain has developed so much in the course of thousands of years that its evolution has outstripped the rest of the body, and evolution requires millions of years for the body to adapt itself to the requirements imposed upon it by the rapid development of the mind. Professor Keith has proved to us that in the evolution of the orthograde ap certain parts of the large intestines, flexures, have become partly fixed to e pi l walls, thus enabling them to adapt amse. to the erect posture, while the flexures quite e in the pronograde apes. Sir Arbuthnot ne[2] h shown how the individual, in the course his life me, evolves structures which help him adapt imself to the upright posture and the quirements of his work. The radiological study stasis has taught us: (1) The situations in which these new structures are acquired; (2) the advantages that accrue from them; (3) the disadvantages of these defences, owing to the mechanical troubles and difficulties set up in the passage of the intestinal contents; and (4) the secondary changes that are produced in other organs.

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[1] Being a special lecture delivered at the West London Post-Graduate College on Feb. 20th, 1920.

The Support of the Viscera and the Beginning of Stasis.

In man the viscera are kept in their place normally by the muscles of the anterior abdominal wall, and in health these muscles retain their tone while the individual is upright. Professor Keith has rightly insisted upon this important truth. The power of these muscles can be dramatically illustrated by observing the effect produced when the intestine is full of bismuth and the flexures are mobile. Lately I examined a young woman in whom, in the upright posture, the flexures dropped into the iliac fossæ. When the abdominal muscles were retracted the flexures shot up to their normal level—a rise of fully 8 in. In young healthy subjects the tone of the abdominal muscles keeps the viscera in their right places without conscious effort.

The adverse cycle which leads ultimately to severe stasis starts in early childhood—nay, in early infancy. Artificial feeding leads to overfilling of the stomach. When the stomach is overfilled it weighs down the transverse colon, the contents of which solidify and stagnate. As Mr. Tyrrell Gray showed in his brilliant Hunterian lecture, the tension thus exerted on the mesentery interferes with peristalsis. In attempting to void the solid fæces, straining occurs, and leads to elongation of the pelvic colon. Thus stasis commences, and pursues its evil course unless remedial measures are taken. Great elongation of the pelvic colon is found very often in the subjects of stasis. It can only be revealed satisfactorily by a barium enema. This is given by means of a douche-can and tube, and a gum-elastic rectal end-piece with a single large terminal aperture. The rectal tube need not be more than 4 to 6 in. long. With the patient lying flat, and the douche-can raised only a foot or two, the fluid runs up readily, filling the entire large bowel within two or three minutes. When stasis exists some fluid enters the small intestine, demonstrating *incompetence* of the ileocæcal valve. To those practitioners who use a long flexible tube for "high" enemata I have to say: (1) It is impossible to pass a long tube through the pelvic colon; an X ray picture shows the tube curled up in the rectum. (2) There is no need to use a long tube, since the fluid runs up freely to the cæcum with a short tube in the rectum.

Visceroptosis and the Rôle of the Mesenteries.

If the abdominal muscles are severely exhausted by prolonged or excessive fatigue they yield to the strain, the muscles relax, and the viscera fall. This occurs in strong, healthy young subjects as the result of sporting competitions, and explains why the members of Guy's football-team were found to have prolapsed colons.

In health, prolonged exertion is required to fatigue the abdominal muscles. In stasis, however, these muscles are depreciated—like every tissue in the body—by the action of the circulating bacterial toxins. In this state the muscles "give out" after a short and moderate exertion. Here we have a good instance of a vicious circle. The study of stasis abounds in instances of vicious circles, which explain many of the difficulties attending the successful treatment of stasis.

When the abdominal muscles fail, the mesenteries act as ligaments, and support the intestines. Professor Keith has shown that the same thing occurs in many joints, notably the shoulder-joint, where the muscles form the chief support of the joint. If the muscles fail through fatigue, the ligaments become the chief supporting structures of the joint. The arch of the foot depends in health on the tonic contraction of the peronei and extensor muscles. If these muscles fail through fatigue the arch of the foot is left at the mercy of the plantar ligaments and the calcaneo-navicular ligament. These ligaments, though strong, yield at last, especially if they are reduced in strength by rheumatism or other disease; flat-foot is the result.

The mesenteries are not suitable to act as ligaments and one of two results follows: Either (1) the mesentery refuses the new function forced upon it, and slips down from its attachment; or (2) the mesentery makes an effort to adapt itself to its new rôle, and becomes thickened where the strain is greatest, with the result that some parts of the bowel are held up at their proper level. In the first case we get the phenomena presented in Glénard's classical description of visceroptosis. In this condition not only do the intestines drop, but the other abdominal viscera, notably the kidneys. The result of the dropping is to force the heavier of the viscera down to the lowest point they can reach—in some cases the true pelvis, where they press upon the pelvic organs and excite symptoms attributable to these organs. Later actual pathological changes are produced in the pelvic organs; in women retroversion of the uterus is a constant accompaniment of general dropping of the abdominal viscera.

Kinks: Their Obstructive Action.

The second result follows in more robust subjects, when nature attempts to prevent the fall of the viscera by the formation of new bands to support them. These bands constitute the kinks and membranes which have been described by Sir Arbuthnot Lane. It is entirely due to his keen observation that the significance of these bands has
been realised. As he puts it, "Th ading microb
crystallisation of lines of force t, where the microbes
local thickening in the me even the stomach.
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extends around the ci ic distended duodenum by
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The first of these cholecystitis and pancreatitis.
iliac region, where the leads in all cases to pyloric
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the left iliac fossa at ach. Here, again, cancer may
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are also apt to form attachments to the parietal abdominal wall. The outer side of the ascending colon becomes attached in a similar way. The band with which Sir Arbuthnot Lane's name is especially associated is the ileal kink, which forms at the end of the ileum, either close to the ileo-cæcal entrance or at some point along the last six inches of the small intestine. In some cases the appendix becomes fixed by bands, and constitutes an anchor that holds the cæcum at its proper level. The terminal ileum and the appendix may be supported by one and the same band. Another band, which is frequently found and produces important clinical symptoms, descends from the lower border of the liver in the region of the neck of the gall-bladder, then expands, fan-like, with its lower border attached to the hepatic flexure and the first part of the transverse colon. This band falls in front of the pylorus, and in most cases the pylorus is attached to it, and is anchored by it when the stomach becomes loaded with food. In some cases the band is found to continue below the transverse colon, and may terminate in an ileal kink, or may even descend to the pelvis and become attached to the right ovary. All these bands and kinks can be demonstrated radiologically during the course of a bismuth meal through the alimentary tract. By means of careful fluorescent-screen examinations, both in the recumbent and upright posture, fixed points of the bowel can be ascertained by the range of movement which occurs during respiration, and by means of manual pressure. If an operation follows upon a bismuth examination, the radiologist has a chance of finding out whether he has failed to note an important detail, or whether he has correctly interpreted the shadows that were thrown upon the screen. By this means only can radiological diagnosis be advanced and perfected.

It must not be inferred that bands and kinks produce mechanical obstruction only, for every band or thickening is an irritant focus which sets up spasm, not purely local, but for a considerable distance along the bowel. If there is a kink within 2 inches of the termination of the small intestine, the cæcum, when the subject is upright, hangs down *from* the kinked point of the ileum, and becomes rotated on its axis. This produces torsion of the last 2 inches of the small intestine. Many observers have argued that a kink which is *obstructive* must lead to dilatation and hypertrophy of the bowel proximal to the kink, and that this dilatation and hypertrophy should terminate abruptly at the kink. In reply to this argument we must note: (1) If the kink is a postural one, it is only obstructive while the patient is upright and when the muscles of the anterior abdominal wall are fatigued; and (2) the spasm set up by the kink is a more important factor in producing stasis than the actual obstruc-
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es the ascending colon follows the cæcum into the pelvis, and drops in front of it. These cases baffled me, for I could not ascertain the condition in the ileo-cæcal region because the last coils of the ileum lay in contiguity with the cæcum and their shadow could not be distinguished from that of the cæcum. Manual pressure could not be effectively brought to bear upon them; moreover, the surgeon could not demonstrate the condition at operation, for he could not examine the ileo-cæcal region without extracting it from the pelvis. It then occurred to me that by placing the patient in the oblique positions on the couch (thorax and abdomen tilted to about 45°), as had long been my practice for examining the hepatic and splenic flexures, I might get the desired results. My plan succeeded. I derived information at once striking and undeniable. In each case the main features are quite constant, though details vary. The terminal coil of the ileum is found to be dilated and tortuous; it exhibits abnormally powerful peristalsis. There is spasm at the ileo-cæcal entrance varying in degree, but in severe cases it amounts to a tight obstructive spasm. An irregularly constricted portion within an inch of the ileo-cæcal entrance is nearly always found. In front of the peristaltic wave the coil bulges. As the wave approaches the constricted portion of the terminal coil of the ileum the bismuth is seen to flow back through the coil instead of completing its journey into the cæcum. This is due to torsion of the coil near its termination—a condition brought about by the backward rotation of the cæcum in the pelvis. In the most severe cases the cæcum actually points upward behind the ascending colon, a position which imposes on the terminal ileum an axial rotation through 180°. Mr. Tyrrell Gray operated recently in one of those cases where the cæcum lay deep in the pelvis. As he drew the cæcum up into view it was seen to curl up like a periwinkle when it is extracted from its shell. It was a remarkable illustration of how ileal torsion is produced and established.

Ileal torsion causes ileal stasis, for (1) the torsion causes a mechanical narrowing of the lumen of the bowel; and (2) it interferes with the vascular and nervous supply of the coil to such an extent that partial paralysis of the constricted part of the coil is produced; (3) it induces chronic irritation in the coil and sets up reflex spasm at the ileo-cæcal entrance.

The position of the appendix is important. In most cases its proximal portion is directed upwards and backwards from the inner and hind wall of the cæcum. In this position the appendix is almost certain to cause a hindrance to the passage of the contents of the ileum into the cæcum. In a smaller number of cases the appendix is directed downwards and gives rise to no inconvenience.

The radiological study of the prolapsed cæcum throws a great deal of light upon chronic intestinal stasis.

Colitis and Diverticulitis.

The inevitable result of stasis in the large intestine is catarrh of the mucous membrane—usually called colitis. Colitis is nature's attempt to evacuate the stagnant fæcal matter by secreting mucus in the bowel. Her success is very limited. The latter portions of the large intestine become reduced in calibre by spasm, while the cæcum and the ascending colon become dilated, and remain full of stagnant matter. In the hepatic flexure region bismuth material is suspended in mucus; in the rest of the large intestine small portions of

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material are propelled through the thread-like calibre of the contracted bowel as far as the rectum, where they accumulate until voided. The spasm set up by catarrh of the mucous membrane becomes so persistent at last that it rarely if ever, relaxes. A thin streak of bismuth is seen day after day in the descending, iliac and pelvic colon, while the bulk of the bismuth remains behind in the dilated cæcum and ascending colon. When the cæcum has dropped into the deepest part of the pelvis it may remain full of bismuth for days in spite of repeated attempts to evacuate it by aperients and enemata. Persistent spasm of the descending and iliac colon leads to thickening of the walls of the bowel, causing the iliac colon to be felt as a firm cord in the left iliac fossa.

What is the final outcome of colitis? If unrelieved, it may lead to new growth. The new growth may arise in the cæcum, where the long retention of stagnant fæces is a potent irritant, or at the hepatic or splenic flexure or in the iliac or pelvic colon, where the spasm produces the greatest pressure. In the iliac colon another result may follow. If this portion of the bowel is fixed to the left iliac fossa (Lane's last kink), and if the bowel wall is infiltrated with fat, as occurs in stout elderly subjects, the bowel wall may become so sodden that it yields to the pressure, and the mucous membrane is forced through the interstices of the weakened muscle of the bowel wall, and gives rise to the condition now known as diverticulitis. An infiltration of leucocytes follows the protrusion of the sacs, and a tumour appears in the left iliac fossa. The tumour formed by diverticulitis is usually mistaken, clinically, for a malignant growth, and, indeed, malignant disease not infrequently supervenes. Under suitable treatment the tumour may disappear. The iliac colon is the site where diverticulitis most frequently occurs, but it may occur on the proximal side of any obstructed or abnormally tortuous portion of the large intestine, and it has been found at the splenic and hepatic flexures and in the ascending colon. I have seen diverticulitis in all these situations. Diverticulitis is, in fact, a special sequel of colitis, which is due to chronic intestinal stasis. The recent discussion on this subject at the Royal Society of Medicine has awakened wide interest in this condition. Although the first acknowledged description dates from 1907, the discussion brought to light the remarkable fact that it had been described, illustrated, and explained by Sir Arbuthnot Lane as early as 1886 in a paper published in the Guy's Hospital Reports. Extracts from these reports were reprinted in THE LANCET of Jan. 24th, 1920, p. 220.

The Undescended Cæcum.

The congenital undescended cæcum is another cause of ileal stasis. It may seem irrational to include, as a cause of stasis, a somewhat rare condition, but as I have seen 14 cases in my own consulting room in the last four years, these cases probably exist in greater number than is supposed. The condition cannot be recognised clinically, and it is often overlooked by radiologists. In the early weeks of fœtal life the cæcum lies in the epigastrium in front of the lower part of the duodenum. As the bowel grows in length the cæcum moves to the right till it reaches the liver; thence it follows the lower border of the liver down to the right flank, where it lies in front of the right kidney, separated from it by some coils of the small intestine. Before reaching its final position in the right iliac fossa the coils of the small intestine fall, allowing the cæcum to come in contact with the posterior abdominal wall. Here it acquires adhesions which keep it in position. Occasionally it happens that the small intestine falls away from behind the cæcum prematurely, allowing the cæcum to make contact with the posterior abdominal wall at a level higher than the normal. The cæcum at once becomes adherent in its abnormal position. With the continued growth in length of the large intestine the ascending colon droops below the cæcum, and the cæcum becomes inverted. The terminal coil of the ileum is the one portion which cannot escape when the rest of the small bowel falls from behind the cæcum, for it is attached to the cæcum at the abnormally high ileo-cæcal entrance. This coil is imprisoned and caught in the bands which bind the cæcum to the posterior parietes. In well-marked cases of the abnormality the imprisoned terminal ileum is obstructed, and becomes an important source of ileal stasis. On operating on a case of this kind recently, Mr. Tyrrell Gray found the last few inches of the ileum running up behind the inverted cæcum, and becoming retro-peritoneal. The free portion of the ileum below the obstructed terminal portion was greatly dilated and hypertrophied.

The Results of Ileal Stasis.

We have now considered most of the causes of ileal stasis. They may be grouped as follows: (1) Lane's ileal kink; (2) the controlling appendix; (3) the dropped cæcum with ileal torsion; (4) the catarrhal cæcum (colitis) with spasm at the ileo-cæcal entrance; (5) the congenital inverted cæcum with the terminal ileum retro-peritoneal.

Although ileal stasis can be produced at least in these five different ways, the results are the same in all cases. These are: (1) Overloading of the lower coils of the ileum, and consequent dropping of these coils into the pelvis. (2) Continued traction on the mesentery of the small intestine, causing it to fall, little by little, from its line of attachment along the posterior parietal wall till the dropping includes all parts of the small intestine, and a kink is produced at the duodeno-jejunal junction. (3) This kink leads to distension of the duodenum.

In addition to these mechanical results of ileal stasis, there are other consequences of the gravest importance. The chief of these is microbic invasion. The stagnant contents which lie in the lower coils of the small intestine convert these coils into breeding-places for virulent micro-organisms. This microbic invasion produces its effects in two ways: (1) A general toxæmia which renders every tissue of the body unhealthy and vulnerable to the attacks of invading microbes. (2) Locally, in the digestive tract, where the microbes invade the duodenum, and even the stomach.

Invasion by Pathogenic Micro-organisms.

The invasion of the distended duodenum by pathogenic micro-organisms leads to congestion of the mucous membrane, and later to ulceration. The microbes may extend into the common bile-duct and give rise to cholecystitis and pancreatitis. Duodenal distension leads in all cases to pyloric spasm.

The invasion of the microbes determines the onset of gastric ulcer at the pylorus or in some other part of the stomach. Here, again, cancer may bring the unhappy history to its close. In the short time available I cannot enter fully into this aspect, but it is familiar to you all, and has been described in recent books and papers dealing with the subject.[3] A well-known physician recently wrote in the journal of his hospital: "Cancer of the stomach comes generally 'out of the blue,' with no preceding history of gastric trouble." I find myself in direct disagreement with this view. I can scarcely recall or find notes of a single case which supports it. The patient may have grown so accustomed to his digestive disorder as to be unaware of it, or at any rate to make no complaint of it. The radiological investigation, however, reveals incontrovertible evidence of long-standing disorder.

Here, for instance, is the case of a lady whose gastric cancer came to her "out of the blue." On careful questioning, it transpired that she had always been inclined to biliousness and constipation. I found an enormously elongated pelvic colon, rising into the right hypochondrium, in contact with the hepatic flexure. Moreover, her cæcum was firmly impacted in the pelvis. On making a digital examination of the rectum the cæcum was encountered full of hard nodular contents, firmly pressed into the rectum. It is certain that she had for years been endeavouring to force her cæcum out through the wall of the rectum whenever she went to stool. The highest point of the alimentary tract which is affected by the change of events which follows upon ileal stasis is the cardiac orifice of the œsophagus. Persistent pyloric spasm leads to enlargement of the stomach, and then there occurs an abnormal traction upon the cardiac orifice. In certain cases this leads to persistent spasm of the cardiac orifice, causing obstruction and dilatation of the œsophagus. This condition of cardiospasm may persist for many years and lead to enormous dilatation of the œsophagus. In all cases of cardiospasm the stomach is found to be enlarged and dropped, in marked contrast to the small contracted stomach usually associated with œsophageal obstruction due to organic stenosis.

General Results of Toxæmia.

As already stated, the toxic absorption which occurs in stasis exerts its deleterious effects upon every tissue. Thus we find atheroma of the aorta at an early age in the subjects of severe stasis. Most glands suffer changes. The breasts become subject to chronic mastitis at an early stage of stasis; at a more advanced stage cystic disease of the breasts occurs, and may end in cancer. The thyroid gland suffers in various ways, the most usual change being atrophy. Exophthalmic goitre occurs in some subjects of stasis; cysts and adenomata of the thyroid are well-known sequels of stasis, and here again cancer may be the last stage. Chronic pancreatitis is one of the most constant changes in stasis. It may lead to cancer, or to glycosuria, ending in true diabetes mellitus. The joints become vulnerable to the tubercle bacillus, and to the micro-organisms which produce rheumatoid arthritis and Still's disease. In regard to tubercle, Sir Arbuthnot Lane states his conviction that tubercle cannot gain a hold on the lungs or any part of the human body except in the presence of stasis. The observations of Sir James Mackenzie go far to confirm this view. His opinion is stated in the clearest possible way in his latest book, "The Future of Medicine." Dr. A. White Robertson[4] has come to the same conclusion as the result of his studies on the effects of toxins, and has stated very definitely his conclusions that tuberculosis, rheumatism, and many other chronic diseases are the effect of the toxins which pervade the tissues as a result of absorption from the intestine in chronic intestinal stasis. Dr. White Robertson is now achieving the most far-reaching results by the treatment of tuberculosis with detoxicated coli and other vaccines.

The Treatment of Chronic Intestinal Stasis.

This can only be considered in outline. It falls under four groups: (1) Surgical, (2) mechanical, (3) medical, (4) bacteriological. If the radiological observations disclose a mechanical obstruction, such as constricting bands or a controlling appendix, surgical interference is the obvious remedy. A simple operation upon the appendix or the division of bands may bring about the desired result. Another group of cases in which operative procedure is necessary comprises the end results of stasis, such as a cicatrised ulcer in the stomach or duodenum or an impacted gall-stone. The immediate results of these operations for the relief of obstruction are so gratifying that the surgeon is apt to overlook the fact that he has not dealt with the primary cause—namely, the stasis. The medical treatment of stasis requires skill and perseverance. Treatment consists in the administration of liquid paraffin and other aperients, diet, regime, and other hygienic measures. The mechanical treatment includes massage and abdominal supports. The simplest efficient support is the "Curtis" belt, designed by Sir Arbuthnot Lane. The bacteriological treatment consists of the injection of vaccines prepared from the pathogenic micro-organisms found in the fæces, the urine, the sputum, the throat, or the gums. In the most advanced cases, when the large intestine has become diseased beyond repair by the ravages of microbes responsible for the production of colitis, all these measures may fail to give more than a slight degree of relief. In these cases the best prospect is undoubtedly found in the removal of the large intestine. It is hardly necessary to say that this is never undertaken unless all other means have failed, or are foredoomed to failure. The results of a successful colectomy are so brilliant as to seem almost miraculous, and prove beyond doubt that the diseased intestine has been the source of all the trouble.

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DEATH OF MR. G. B. ELLIOTT.—George Blacker Elliott, Major R.A.M.C., who died at Brixham, Devon, on March 22nd, in his 56th year, was the youngest son of the late Mr. W. Armstrong Elliott, F.R.C.S. Irel., of Dublin. He had been in practice for many years at Brixham, where he was on the honorary medical staff of the cottage hospital, medical officer of health for the urban district, Admiralty surgeon and agent.

THE PEOPLE'S LEAGUE OF HEALTH.—The League is urging borough councils and Poor-law guardians wherever possible to take over the buildings of discontinued military hospitals and to open them as paying maternity hospitals at a fee of about a guinea. Allowing for a minimum stay in hospital of three weeks after confinement and the increased maternity benefit of £2, only an additional £1 3s. or so would remain to be found by the prospective parents. The welfare committee of the Hampstead Borough Council has reported favourably on this suggestion.

THE ELECTRICAL STIMULATION OF NERVES AT OPERATION

By NOEL H M BURKE, M R C S, L R C P Lond
LATELY MEDICAL OFFICER IN CHARGE OF THE ELECTRICAL DEPARTMENT HORTON WAR HOSPITAL EPSOM

DURING the years 1915 to 1917 a number of observations on this subject were made at the Horton and Manor War Hospitals at Epsom, and the results obtained, with such lessons as appear to be deducible from the experience gained in a series of some 80 cases, may be of interest

The first matter to be decided upon is the choice of apparatus and of method and the following fundamental considerations have led to the adoption of a certain routine

1 Since a nerve is a small and delicate structure *which at the greatest is little thicker than a pencil, and* since access is through the comparatively small opening of an operation wound, the electrode must be compact, easily held and manipulated even in the depths of a small wound, and capable of thorough sterilisation

2 The surgeon dislikes interruption or interference with the course of his manipulations and the anæsthetist sometimes objects to prolongation of anæsthesia, so that any electrical examination should be rapid and simple

3 With the *direct* current it is easy to burn any tissues which are in contact with the electrodes, and though it is possible to lessen this danger by suitable precautions, it is safer to use the *induction coil* current only The results appear to be similar and equally valuable

After the first few attempts, with varying devices, I have come to regard the following apparatus as meeting all the requirements of practical importance —

1 A Lewis Jones sledge coil, which is handy and portable and can be put on a chair or stool well out of the way of the operator and his assistants

2 Two long cables are attached to the terminals of this machine, and their peripheral ends, for about 3½ or 4 feet, are cased in good rubber tubing made continuous with the insulation of the bi polar electrode The rubber ends can be boiled in the steriliser and thereafter form part of the sterile apparatus for handling by the surgeon and others who are "clean," while the central end above the rubber tubing is unclean, and can be freely handled by the electrologist, neurologist, or such assistant as may be appointed to control the coil

3 The electrode I have found most useful is a small telephone plug, with the two pins bent towards each other Around its junction with the cables rubber tape is tightly wound and the joints sealed with pure rubber solution

Object of the Examination

The functions of the nerve which it is possible to investigate are those of excitability and conductivity. When stimulation of the nerve above the lesion leads to muscular contraction this is mainly evidence of physiological continuity of the nerve through the area of injury—that is to say, a demonstration of conductivity The excitability of the central end is not likely to suffer to a great extent Contraction obtained by stimulating below the lesion is mainly evidence of the excitability of the peripheral portion of the nerve trunk It is also a proof of conductivity in this lower part of the nerve, but the extent to which this must be considered is discussed below It is necessary, therefore, to examine the result of stimulation of the nerve trunk above and below the level of the lesion, both before and after dissection of the nerve from scar tissue and adhesions This is not really difficult from the surgeon's point of view, because the majority are cases of compression in scar tissue rather than of complete division, and in most of these the result of the wound and the subsequent scarring has led to deformity from normal relationships Most surgeons therefore first look for the nerve above and below the wound level, so as to find it easily in its proper position, and then trace it down and up into the area of lesion This rule applies to nearly all operations for nerve injury, and, indeed, the few operators who try to find the nerve directly in the midst of the area of injury soon find themselves in difficulties, and may do damage This rule has lately been emphasised by Sir Robert Jones

Method

The first two or three observations were made with a pin electrode on the nerve, and a large indifferent electrode on some distant part of the body. This, however, seemed to be calculated to increase the liability of the stimulation to spread to other structures than the nerve under observation, and to tend to inaccuracy, it also led to the inconvenience of wires diverging to opposite ends of the operating table, instead of both going close together to the site of operation only. For these reasons the small bi polar electrode was adopted for general use

Strength of stimulus —The coil is adjusted to yield the current which experience has shown to be sufficient to produce an obvious contraction in an average normal case, This has been regarded as the standard strength of stimulation, and provides a measure for the rough comparison of results which alone is possible under the conditions already described *Minute measurement* is not practicable The general idea is to use the constant strength and to note the results obtained under varying conditions

Method of stimulation —The nerve trunk having been isolated in its undamaged portion above the lesion, is gently lifted on a hook so as to be free of surrounding structures The electrode is then applied, so *that the two pin terminals* lie evenly and lightly on the trunk the current is turned on, and the result noted The observation is rapidly repeated with the electrode applied *to different aspects of* the nerve surface in order to pick out separate muscles with greater accuracy The same observations are made for the portion of the nerve below the injury *Dissection* is then finished, and if the nerve is found to be in anatomical continuity the tests are repeated on the liberated nerve

Observation —It is necessary to have good exposure of the hand, foot or other part in which movement is to be sought for This part need not be "clean unless the surgeon himself is making the observation The examination of the result of stimulation must be done with scrupulous care by someone accustomed to the business, so that a minute muscular contraction is not missed, nor the nature of a movement misinterpreted For instance, if the median nerve has been stimulated and the thumb moves, it is necessary to be certain whether the movement is of median type and *signifies a fairly sound* nerve or of ulnar type due to spreading of the current and signifying at least much depression of the physiological activity of the median

Discussion of Observations

These examinations were made at first rather with a view to gaining information *about the conditions* present in nerve injuries than as a means of guiding the surgeon's decision From the results obtained certain ideas quickly suggested themselves and will be mentioned below It is not easy to collect the information into a simple form that is easily read, but an attempt has been made in the bring the unhappy history to its close. In the short time available I cannot enter fully into this aspect, but it is familiar to you all, and has been described in recent books and papers dealing with the subject.[3] A well-known physician recently wrote in the journal of his hospital: "Cancer of the stomach comes generally 'out of the blue,' with no preceding history of gastric trouble." I find myself in direct disagreement with this view. I can scarcely recall or find notes of a single case which supports it. The patient may have grown so accustomed to his digestive disorder as to be unaware of it, or at any rate to make no complaint of it. The radiological investigation, however, reveals incontrovertible evidence of long-standing disorder.

Here, for instance, is the case of a lady whose gastric cancer came to her "out of the blue." On careful questioning, it transpired that she had always been inclined to biliousness and constipation. I found an enormously elongated pelvic colon, rising into the right hypochondrium, in contact with the hepatic flexure. Moreover, her cæcum was firmly impacted in the pelvis. On making a digital examination of the rectum the cæcum was encountered full of hard nodular contents, firmly pressed into the rectum. It is certain that she had for years been endeavouring to force her cæcum out through the wall of the rectum whenever she went to stool. The highest point of the alimentary tract which is affected by the change of events which follows upon ileal stasis is the cardiac orifice of the œsophagus. Persistent pyloric spasm leads to enlargement of the stomach, and then there occurs an abnormal traction upon the cardiac orifice. In certain cases this leads to persistent spasm of the cardiac orifice, causing obstruction and dilatation of the œsophagus. This condition of cardiospasm may persist for many years and lead to enormous dilatation of the œsophagus. In all cases of cardiospasm the stomach is found to be enlarged and dropped, in marked contrast to the small contracted stomach usually associated with œsophageal obstruction due to organic stenosis.

General Results of Toxæmia.

As already stated, the toxic absorption which occurs in stasis exerts its deleterious effects upon every tissue. Thus we find atheroma of the aorta at an early age in the subjects of severe stasis. Most glands suffer changes. The breasts become subject to chronic mastitis at an early stage of stasis; at a more advanced stage cystic disease of the breasts occurs, and may end in cancer. The thyroid gland suffers in various ways, the most usual change being atrophy. Exophthalmic goitre occurs in some subjects of stasis; cysts and adenomata of the thyroid are well-known sequels of stasis, and here again cancer may be the last stage. Chronic pancreatitis is one of the most constant changes in stasis. It may lead to cancer, or to glycosuria, ending in true diabetes mellitus. The joints become vulnerable to the tubercle bacillus, and to the micro-organisms which produce rheumatoid arthritis and Still's disease. In regard to tubercle, Sir Arbuthnot Lane states his conviction that tubercle cannot gain a hold on the lungs or any part of the human body except in the presence of stasis. The observations of Sir James Mackenzie go far to confirm this view. His opinion is stated in the clearest possible way in his latest book, "The Future of Medicine." Dr. A. White Robertson[4] has come to the same conclusion as the result of his studies on the effects of toxins, and has stated very definitely his conclusions that tuberculosis, rheumatism, and many other chronic diseases are the effect of the toxins which pervade the tissues as a result of absorption from the intestine in chronic intestinal stasis. Dr. White Robertson is now achieving the most far-reaching results by the treatment of tuberculosis with detoxicated coli and other vaccines.

The Treatment of Chronic Intestinal Stasis.

This can only be considered in outline. It falls under four groups: (1) Surgical, (2) mechanical, (3) medical, (4) bacteriological. If the radiological observations disclose a mechanical obstruction, such as constricting bands or a controlling appendix, surgical interference is the obvious remedy. A simple operation upon the appendix or the division of bands may bring about the desired result. Another group of cases in which operative procedure is necessary comprises the end results of stasis, such as a cicatrised ulcer in the stomach or duodenum or an impacted gall-stone. The immediate results of these operations for the relief of obstruction are so gratifying that the surgeon is apt to overlook the fact that he has not dealt with the primary cause—namely, the stasis. The medical treatment of stasis requires skill and perseverance. Treatment consists in the administration of liquid paraffin and other aperients, diet, regime, and other hygienic measures. The mechanical treatment includes massage and abdominal supports. The simplest efficient support is the "Curtis" belt, designed by Sir Arbuthnot Lane. The bacteriological treatment consists of the injection of vaccines prepared from the pathogenic micro-organisms found in the fæces, the urine, the sputum, the throat, or the gums. In the most advanced cases, when the large intestine has become diseased beyond repair by the ravages of microbes responsible for the production of colitis, all these measures may fail to give more than a slight degree of relief. In these cases the best prospect is undoubtedly found in the removal of the large intestine. It is hardly necessary to say that this is never undertaken unless all other means have failed, or are foredoomed to failure. The results of a successful colectomy are so brilliant as to seem almost miraculous, and prove beyond doubt that the diseased intestine has been the source of all the trouble.

References.—1. The Operative Treatment of Chronic Intestinal Stasis, by Sir W. Arbuthnot Lane, fourth edition, p. 207. 2. Ibid., Chapter I. 3. Gastric Ulcer, by A. C. Jordan, Proc. Roy. Soc. Med., 1913, vol. vi. (Electro-Therap. Sect.), pp. 117-138. 4. A. White Robertson (*a*) "L.P."—The Treatment of Inflammation and Sepsis by Lipoid-Paraffin Dressings, Geo. Routledge and Sons; (*b*) The Master Toxin, London, 1914; (*c*) Toxins and Master Toxins: a Study in Tuberculosis, Practitioner, March, 1915.

DEATH OF MR. G. B. ELLIOTT.—George Blacker Elliott, Major R.A.M.C., who died at Brixham, Devon, on March 22nd, in his 56th year, was the youngest son of the late Mr. W. Armstrong Elliott, F.R.C.S. Irel., of Dublin. He had been in practice for many years at Brixham, where he was on the honorary medical staff of the cottage hospital, medical officer of health for the urban district, Admiralty surgeon and agent.

THE PEOPLE'S LEAGUE OF HEALTH.—The League is urging borough councils and Poor-law guardians wherever possible to take over the buildings of discontinued military hospitals and to open them as paying maternity hospitals at a fee of about a guinea. Allowing for a minimum stay in hospital of three weeks after confinement and the increased maternity benefit of £2, only an additional £1 3*s.* or so would remain to be found by the prospective parents. The welfare committee of the Hampstead Borough Council has reported favourably on this suggestion.

THE ELECTRICAL STIMULATION OF NERVES AT OPERATION.

By NOEL H. M. BURKE, M.R.C.S., L.R.C.P. LOND.,
LATELY MEDICAL OFFICER IN CHARGE OF THE ELECTRICAL DEPARTMENT, HORTON WAR HOSPITAL, EPSOM

DURING the years 1915 to 1917 a number of observations on this subject were made at the Horton and Manor War Hospitals at Epsom, and the results obtained, with such lessons as appear to be deducible from the experience gained in a series of some 80 cases, may be of interest.

The first matter to be decided upon is the choice of apparatus and of method, and the following fundamental considerations have led to the adoption of a certain routine.

1. Since a nerve is a small and delicate structure, which at the greatest is little thicker than a pencil, and since access is through the comparatively small opening of an operation wound, the electrode must be compact, easily held and manipulated even in the depths of a small wound, and capable of thorough sterilisation.
2. The surgeon dislikes interruption or interference with the course of his manipulations and the anæsthetist sometimes objects to prolongation of anæsthesia, so that any electrical examination should be rapid and simple.
3. With the *direct* current it is easy to burn any tissues which are in contact with the electrodes, and though it is possible to lessen this danger by suitable precautions, it is safer to use the *induction coil* current only. The results appear to be similar and equally valuable.

After the first few attempts, with varying devices, I have come to regard the following apparatus as meeting all the requirements of practical importance.—

1. A Lewis Jones sledge coil, which is handy and portable and can be put on a chair or stool well out of the way of the operator and his assistants.
2. Two long cables are attached to the terminals of this machine, and their peripheral ends, for about 3½ or 4 feet, are cased in good rubber tubing made continuous with the insulation of the bi-polar electrode. The rubber ends can be boiled in the steriliser and thereafter form part of the sterile apparatus for handling by the surgeon and others who are "clean," while the central end above the rubber tubing is unclean, and can be freely handled by the electrologist, neurologist, or such assistant as may be appointed to control the coil.
3. The electrode I have found most useful is a small telephone plug, with the two pins bent towards each other. Around its junction with the cables rubber tape is tightly wound and the joints sealed with pure rubber solution.

Object of the Examination.

The functions of the nerve which it is possible to investigate are those of excitability and conductivity. When stimulation of the nerve above the lesion leads to muscular contraction this is mainly evidence of physiological continuity of the nerve through the area of injury—that is to say, a demonstration of conductivity. The excitability of the central end is not likely to suffer to a great extent. Contraction obtained by stimulating below the lesion is mainly evidence of the excitability of the peripheral portion of the nerve trunk. It is also a proof of conductivity in this lower part of the nerve, but the extent to which this must be considered is discussed below. It is necessary, therefore, to examine the result of stimulation of the nerve trunk above and below the level of the lesion, both before and after dissection of the nerve from scar tissue and adhesions. This is not really difficult from the surgeon's point of view, because the majority are cases of compression in scar tissue rather than of complete division, and in most of these the result of the wound and the subsequent scarring has led to deformity from normal relationships. Most surgeons therefore first look for the nerve above and below the wound level, so as to find it easily in its proper position, and then trace it down and up into the area of lesion. This rule applies to nearly all operations for nerve injury, and, indeed, the few operators who try to find the nerve directly in the midst of the area of injury soon find themselves in difficulties, and may do damage. This rule has lately been emphasised by Sir Robert Jones.

Method.

The first two or three observations were made with a pin electrode on the nerve, and a large indifferent electrode on some distant part of the body. This, however, seemed to be calculated to increase the liability of the stimulation to spread to other structures than the nerve under observation, and to tend to inaccuracy; it also led to the inconvenience of wires diverging to opposite ends of the operating table, instead of both going close together to the site of operation only. For these reasons the small bi-polar electrode was adopted for general use.

Strength of stimulus.—The coil is adjusted to yield the current which experience has shown to be sufficient to produce an obvious contraction in an average normal case. This has been regarded as the standard strength of stimulation, and provides a measure for the rough comparison of results which alone is possible under the conditions already described. Minute measurement is not practicable. The general idea is to use the constant strength and to note the results obtained under varying conditions.

Method of stimulation.—The nerve trunk, having been isolated in its undamaged portion above the lesion, is gently lifted on a hook so as to be free of surrounding structures. The electrode is then applied, so that the two pin terminals lie evenly and lightly on the trunk, the current is turned on, and the result noted. The observation is rapidly repeated, with the electrode applied to different aspects of the nerve surface, in order to pick out separate muscles with greater accuracy. The same observations are made for the portion of the nerve below the injury. Dissection is then finished, and if the nerve is found to be in anatomical continuity the tests are repeated on the liberated nerve.

Observation.—It is necessary to have good exposure of the hand, foot, or other part in which movement is to be sought for. This part need not be "clean," unless the surgeon himself is making the observation. The examination of the result of stimulation must be done with scrupulous care by someone accustomed to the business, so that a minute muscular contraction is not missed, nor the nature of a movement misinterpreted. For instance, if the median nerve has been stimulated and the thumb moves, it is necessary to be certain whether the movement is of median type and signifies a fairly sound nerve, or of ulnar type due to spreading of the current, and signifying at least much depression of the physiological activity of the median.

Discussion of Observations.

These examinations were made at first rather with a view to gaining information about the conditions present in nerve injuries than as a means of guiding the surgeon's decision. From the results obtained certain ideas quickly suggested themselves, and will be mentioned below. It is not easy to collect the information into a simple form that is easily read, but an attempt has been made in the accompanying table to show the evidence on the main points, and from this evidence certain facts emerge.

TABLE OF RESULTS. CONDUCTIVITY AND EXCITABILITY BEFORE AND AFTER FREEING THE NERVE.

(a) *Complete Division of Nerve* (25 cases).

Conductivity.		Excitability.	
Before.	After.	Before.	After.
19 absent. 6 no test.	— —	19 absent. 6 no test.	— —
(b) *Nearly Complete Division of Nerve* (13 cases).			
3 present.	1 present. 2 diminished.	1 absent. 1 much dim. 1 ? absent.	1 absent. 1 much dim. 1 diminished.
1 ?	1 no test.	1 no test.	1 very weak.
4 absent.	3 absent. 1 no test.	3 absent. 1 no test.	2 absent. 1 no test. 1 weak.
5 no test.	5 no test.	2 ? 1 absent. 2 no test.	2 ? 1 absent. 1 present. 1 no test.
(c) *Slight Division of Nerve* (2 cases).			
1 present. 1 present.	1 present. 1 diminished.	1 weak. 1 present.	1 weak. 1 improved.
(d) *Scar Tissue* (42 cases).			
19 present.*	5 improved. 8 unchanged. 1 absent. 5 no test.	20 present.	8 improved. 5 unchanged. 7 no test.
1 ?	1 absent.	1 ? present.	1 present.
6 absent.†	2 present. 3 absent. 1 no test.	10 absent.	4 present. 6 absent.
16 no test.	16 no test.	11 no test.	5 present. 5 absent. 1 no test.

* One had causalgia and no visible or palpable scar. One had two operations on the same nerve, at different levels.

† One had causalgia and much scar. One had two operations on the same nerve on contiguous portions, the second time not tested.

1. No response was obtained on stimulation of the nerve in any case of complete division.

2. Cases of severe injury amounting to obvious destruction of more than half the cross-section of a nerve showed some response to stimulation in a fair number of instances, and the response was in general diminished after dissection was complete. Sometimes this would suggest that the dissection had divided a few surviving fibres that were much involved in scar tissue but still physiologically active.

3. Among these and other fairly severe cases one or two were noticed which seemed to show fatigue or diminished activity, either as a result of much manipulation or of much stimulation. These were not numerous enough to dogmatise upon, but suggest a line for further investigation.

4. Conductivity when present may be of normal or diminished quality.

5. A muscular contraction in response to stimulation of the central portion of the nerve is proof not only that conductivity is present through the area of injury, but also, of necessity, that it is present in the whole peripheral portion of the nerve. Nevertheless, it is possible to have in this lower portion a diminished or even absent excitability to such stimuli as are applied in this method, although the nerve can conduct an impulse from above.

6. In the two cases where slight division was the predominant feature each gave response, one showing improvement of excitability but diminished conductivity after dissection.

7. The scar cases were, of course, a mixed set, including those which showed no macroscopic evidence of section of fibres and a greater or less degree of fibrous formation about the nerve trunk. The greater number showed a conductivity more or less preserved (19 out of 26 examined), while 20 out of 31 showed excitability. Both qualities were in general improved after neurolysis; only 1 case showed a diminution, and this was of conductivity.

8. It is only with a fairly sound nerve that anything like a general contraction of the whole muscle group is seen. Mostly one gets only a contraction of one or two larger muscles. This is a drawback in estimating the condition of the nerve from the results seen in such a state as partial division, as the contraction produced does not necessarily mean that no fibres have been divided.

9. It is easy when stimulating a seriously injured nerve to get a contraction of muscles supplied by a neighbouring healthy nerve, somewhat as is seen in ordinary clinical muscle testing. This spreading of stimulation is lessened if the nerve is held up on a hook away from other tissues, so that the maximum intensity of the current is applied to the nerve, and can only get to neighbouring tissues through its long axis.

10. It has been very instructive to examine, treat, and report on cases before operation, and then to go and see what condition was actually found on the table. It has also been a help, in deciding on the course of treatment after operation, to know exactly what has been done.

11. For these reasons, and because he has the responsibility of the greater part of the period of treatment in these cases, the electrotherapist should collaborate closely with the surgeon and should attend the operations on his patients whenever possible.

12. One way in which the experience of this series has been of interest is in the light it has thrown on the accuracy of diagnostic methods and their interpretation. The reports from the electrical department endeavoured to indicate the probable degree of injury (complete division, much scar tissue, division of a few fibres only, &c.) and comparison of the opinions given in reports before operation and the actual findings shows the following results: Diagnosis correct, 41 cases; approximately correct, 18; about half right, 11; about a quarter right, 1; quite wrong, 1. The error was due to optimistic interpretation in 13 cases and five times to pessimism.

Conclusions and Lessons.

(1) Every case should be tested, as a fair number of decisions are made easier by the information obtained and an unnecessary section of an undivided nerve may be thereby avoided. This was strongly brought home in a recent case, not included in the series, where the median nerve had been exposed high in the axilla. The surgeon, his assistant, and I all felt the mass of scar tissue into which the nerve was traced, and all thought we detected a definite end to the nerve course. On stimulation, however, contraction was obtained. Without this demonstration it is quite probable that the nerve would have been divided at its apparent cut end in order to make further dissection simpler.

(2) Conductivity is conclusive evidence of physiological continuity of nerve fibres, as also is excitability below the lesion.

(3) Improvement in conductivity or in peripheral excitability following immediately after neurolysis is suggestive of only slight compression and possibly chemical nerve-block.

(4) Absence of conductivity and of excitability, even after neurolysis, is not conclusive evidence of division, but is probably an indication of fairly severe nerve disturbance.

I have to express my thanks for the ready kindness of the surgeons who have allowed me to make my investigations while they operated: Major H. Makin and Captains G. Owen and J. McGee, of the Australian Imperial Force; Majors A. Paling, M. G. Riches, and A. F. Stabb, and Captain Lawson Whale, of the R.A.M.C.; and Mr. W. S. Fenwick and Mr. R. Warren, who were consulting surgeons to Horton War Hospital. I have also to thank Lieutenant-Colonels J. R. Lord and S. Elgee, R.A.M.C. officers commanding the two hospitals, for kind permission to publish this paper.

FATAL ANAPHYLAXIS

FOLLOWING THE PROPHYLACTIC ADMINISTRATION OF ANTITETANIC SERUM.

BY FRASER B. GURD, M.D. McGILL,
AND
E. EMRYS-ROBERTS, M.D. LIVERP.

THAT the parenteral introduction of foreign protein in the form of antisera is not infrequently accompanied by more or less important constitutional and local manifestations of irritation or intoxication is generally appreciated. Fortunately, such symptoms consist, as a rule, simply in the development, a few (2 to 14) days after the injection, of urticarial and erythematous eruptions, and joint or muscle pains, accompanied sometimes by a certain degree of pyrexia. The patient is often very unhappy, but otherwise such examples of serum sickness are not of sufficient importance to contra-indicate the employment of sera for either prophylactic or therapeutic purposes.

From time to time, during the past 15 years, cases of severe and fatal reaction following the administration of horse serum have been recorded. The great majority of these cases have occurred among patients receiving the serum in the treatment of their infections. In the prophylactic injection of antitoxin-containing sera—e.g., antidiphtheritic and antitetanic sera—the amount of protein introduced is relatively very small and the material is commonly injected into the subcutaneous tissues. In consequence very few serious accidents have occurred.

Report of Case.

The case reported in this paper proves the possibility of a fatal reaction to the administration of horse serum in small doses. This case is reported, not as an objection to the routine injection of all wounded with antitetanic serum, but rather in order that a rare clinical accident may be placed upon record.

L./Sgt. E. was admitted to a casualty clearing station on Sept. 1st, 1916, at 10.15 A.M. A few hours previously he had received several small bomb wounds of both hands, the right thigh, and left calf. All wounds upon examination were found to be unimportant. The patient was in good general condition; he was a well-built man about 30 years of age. Pulse and temperature were normal.

As the patient had not received his antitetanic serum prior to admission, this was administered at 11.15 A.M. 750 units (U.S.A.) contained in 5 c.cm. of serum were injected subcutaneously over the right pectoralis major muscle. (There is the possibility that part of the serum was injected into the muscle.) The patient remained well until 1.30 P.M., two and a quarter hours after the serum inoculation, at which hour he commenced to vomit, and had a bloody diarrhœa. This gastro-intestinal disturbance was accompanied by a moderate degree of collapse. Between 1.30 and 5 P.M. he vomited eight times, and had six bowel movements. All bowel evacuations contained blood. The stools were watery, and contained small particles of fæces, and a moderate amount of small blood clot. The sister in charge of the case noted no blood in the vomitus.

Examination at 5 P.M. resulted in the following notes: "Pulse 104, temp. 102·8° F. Patient complains of moderate headache and thirst. There is slight generalised abdominal tenderness, no rigidity. The chest is negative, no complaint of respiratory distress, despite the fact that he is cyanosed and restless. The skin is 'goose-fleshed,' and covered with a mild erythema." From 5 P.M. to 11 P.M. the patient remained in this state of moderately severe collapse. He received water by mouth, otherwise no treatment was instituted, as his condition was not alarming.

At 11 P.M., after a slight vomiting attack, the collapsed state became very severe. He became pulseless at the radials, heart beat rose to 160–170. Extreme cyanosis supervened, and restlessness increased. During the night stimulation was pressed to the utmost. Pituitary extract, 1 c.cm. to the dose, was given every three hours. Strychnine, 1/30 gr., was given at 11 P.M., and continued in doses of 1/40 gr. every three hours. He received 3 pints of saline subcutaneously during the night, and oxygen almost continuously up to the time of death. Except for the fact that he became quieter and more comfortable while receiving oxygen, there was no response to stimulation.

At 6 A.M. on Sept. 2nd the following notes were made: "Pulse is absent at the wrist, heart-rate 180 and feeble. There is a very marked purplish discoloration (cyanotic erythema) of the whole body. This discoloration disappears upon pressure and returns very slowly. The extremities are cold. There has been no return of vomiting or diarrhœa."

Death ensued at 10.30 A.M., apparently due to cardiac failure secondary to drop in blood pressure. Respirations during the last three hours of life were at the rate of 48–54 per minute.

Note.—Patient stated that he had suffered during the past four or five years from periodic attacks of vomiting at three or four weeks' interval, always accompanied by bloody diarrhœa.

Autopsy.

Autopsy performed four hours post mortem; body is that of a well-developed, well-nourished man of, apparently about 30 years of age. Rigor mortis is moderate. Lividity is excessive, except over the centre of chest and abdomen. There is œdema of both pectoral regions (subcutaneous saline). Wounds are trivial.

Thymus is completely atrophied.

Thyroid is somewhat enlarged and contains a few minute cysts filled with colloid.

Peritoneal cavity: There is a normal amount of clear fluid, lymph nodes are larger than normal, those in the gastro-colic omentum are deep-red in colour. Appendix normal. Vessels (veins) of splanchnic area are moderately distended with fluid blood, especially those draining duodenum and the upper part of the jejunum.

Pleural cavities: Both cavities are obliterated by moderately dense adhesions.

Pericardial cavity: Negative.

Lungs: Owing to the pleural adhesions present the lungs were squeezed considerably in the process of removal. The lungs are, nevertheless, voluminous and downy, except over the posterior parts, which are boggy and dark in colour. The lungs are reddish-grey in colour and are covered over the whole surface with innumerable subpleural collections of deep purple-coloured blood. These patches vary in size from 1·5 to 5 mm. (Note: These hæmorrhagic patches are typical of those found in anaphylaxis in the guinea-pig.) Beneath the parietal pleura there is a smaller number of similar hæmorrhagic spots. The cut surface of the posterior parts exudes a considerable amount of bloody frothy fluid; the anterior portions show a dilatation of the alveoli and numerous small purplish-red spots.

Heart: Normal in size and shape. The right ventricle, especially, is filled with dark fluid blood and loose friable clot. Myocardium and endocardium are negative. Beneath the epicardium covering the auricles there are numerous small purplish spots measuring from 1 to 2·5 mm. in diameter.

Liver: Purplish in colour, normal in size and consistence. Cut surface exudes an increased amount of fluid blood. The gall-bladder is slightly distended.

Spleen: Weight about 150 g., exudes upon section a moderate amount of blood. The splenic vein is distended with fluid blood.

Pancreas: Negative, except for serous congestion.

Adrenals: Negative.

Kidneys: Congested.

Bladder: contains straw-coloured urine.

Stomach and intestine: The gut contains bile-stained fluid fæces. No blood is present. Solitary follicles are prominent. Peyer's patches are not enlarged. There is moderate superficial capillary engorgement in the stomach, particularly about both orifices.

accompanying table to show the evidence on the main points, and from this evidence certain facts emerge.

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Conductivity.		Excitability.	
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1 ?	1 no test.	1 no test.	1 very weak.
4 absent.	3 absent. 1 no test.	3 absent. 1 no test.	2 absent. 1 no test. 1 weak.
5 no test.	5 no test.	2 ? 1 absent. 2 no test.	2 ? 1 absent. 1 present. 1 no test.
(c) *Slight Division of Nerve (2 cases).*			
1 present. 1 present.	1 present. 1 diminished.	1 weak. 1 present.	1 weak. 1 improved.
(d) *Scar Tissue (42 cases).*			
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* One had causalgia and no visible or palpable scar. One had two operations on the same nerve, at different levels.

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1. No response was obtained on stimulation of the nerve in any case of complete division.

2. Cases of severe injury amounting to obvious destruction of more than half the cross-section of a nerve showed some response to stimulation in a fair number of instances, and the response was in general diminished after dissection was complete. Sometimes this would suggest that the dissection had divided a few surviving fibres that were much involved in scar tissue but still physiologically active.

3. Among these and other fairly severe cases one or two were noticed which seemed to show fatigue or diminished activity, either as a result of much manipulation or of much stimulation. These were not numerous enough to dogmatise upon, but suggest a line for further investigation.

4. Conductivity when present may be of normal or diminished quality.

5. A muscular contraction in response to stimulation of the central portion of the nerve is proof not only that conductivity is present through the area of injury, but also, of necessity, that it is present in the whole peripheral portion of the nerve. Nevertheless, it is possible to have in this lower portion a diminished or even absent excitability to such stimuli as are applied in this method, although the nerve can conduct an impulse from above.

6. In the two cases where slight division was the predominant feature each gave response, one showing improvement of excitability but diminished conductivity after dissection.

7. The scar cases were, of course, a mixed set, including those which showed no macroscopic evidence of section of fibres and a greater or less degree of fibrous formation about the nerve trunk. The greater number showed a conductivity more or less preserved (19 out of 26 examined), while 20 out of 31 showed excitability. Both qualities were in general improved after neurolysis; only 1 case showed a diminution, and this was of conductivity.

8. It is only with a fairly sound nerve that anything like a general contraction of the whole muscle group is seen. Mostly one gets only a contraction of one or two larger muscles. This is a drawback in estimating the condition of the nerve from the results seen in such a state as partial division, as the contraction produced does not necessarily mean that no fibres have been divided.

9. It is easy when stimulating a seriously injured nerve to get a contraction of muscles supplied by a neighbouring healthy nerve, somewhat as is seen in ordinary clinical muscle testing. This spreading of stimulation is lessened if the nerve is held up on a hook away from other tissues, so that the maximum intensity of the current is applied to the nerve, and can only get to neighbouring tissues through its long axis.

10. It has been very instructive to examine, treat, and report on cases before operation, and then to go and see what condition was actually found on the table. It has also been a help, in deciding on the course of treatment after operation, to know exactly what has been done.

11. For these reasons, and because he has the responsibility of the greater part of the period of treatment in these cases, the electrotherapist should collaborate closely with the surgeon and should attend the operations on his patients whenever possible.

12. One way in which the experience of this series has been of interest is in the light it has thrown on the accuracy of diagnostic methods and their interpretation. The reports from the electrical department endeavoured to indicate the probable degree of injury (complete division, much scar tissue, division of a few fibres only, &c.) and comparison of the opinions given in reports before operation and the actual findings shows the following results: Diagnosis correct, 41 cases; approximately correct, 18; about half right, 11; about a quarter right, 1; quite wrong, 1. The error was due to optimistic interpretation in 13 cases and five times to pessimism.

Conclusions and Lessons.

(1) Every case should be tested, as a fair number of decisions are made easier by the information obtained and an unnecessary section of an undivided nerve may be thereby avoided. This was strongly brought home in a recent case, not included in the series, where the median nerve had been exposed high in the axilla. The surgeon, his assistant, and I all felt the mass of scar tissue into which the nerve was traced, and all thought we detected a definite end to the nerve course. On stimulation, however, contraction was obtained. Without this demonstration it is quite probable that the nerve would have been divided at its apparent cut end in order to make further dissection simpler.

(2) Conductivity is conclusive evidence of physiological continuity of nerve fibres, as also is excitability below the lesion.

(3) Improvement in conductivity or in peripheral excitability following immediately after neurolysis is suggestive of only slight compression and possibly chemical nerve-block.

(4) Absence of conductivity and of excitability, even after neurolysis, is not conclusive evidence of division, but is probably an indication of fairly severe nerve disturbance.

I have to express my thanks for the ready kindness of the surgeons who have allowed me to make my investigations while they operated: Major H. Makin and Captains G. Owen and J. McGee, of the Australian Imperial Force; Majors A. Paling, M. G. Riches, and A. F. Stabb, and Captain Lawson Whale, of the R.A.M.C.; and Mr. W. S. Fenwick and Mr. R. Warren, who were consulting surgeons to Horton War Hospital. I have also to thank Lieutenant-Colonels J. R. Lord and S. Elgee, R.A.M.C., officers commanding the two hospitals, for kind permission to publish this paper.

FATAL ANAPHYLAXIS

FOLLOWING THE PROPHYLACTIC ADMINISTRATION OF ANTITETANIC SERUM.

BY FRASER B. GURD, M.D MCGILL,
AND
E. EMRYS-ROBERTS, M D LIVERP.

THAT the parenteral introduction of foreign protein in the form of antisera is not infrequently accompanied by more or less important constitutional and local manifestations of irritation or intoxication is generally appreciated. Fortunately, such symptoms consist, as a rule, simply in the development, a few (2 to 14) days after the injection, of urticarial and erythematous eruptions, and joint or muscle pains, accompanied sometimes by a certain degree of pyrexia. The patient is often very unhappy, but otherwise such examples of serum sickness are not of sufficient importance to contra-indicate the employment of sera for either prophylactic or therapeutic purposes.

From time to time, during the past 15 years, cases of severe and fatal reaction following the administration of horse serum have been recorded. The great majority of these cases have occurred among patients receiving the serum in the treatment of their infections. In the prophylactic injection of antitoxin-containing sera—e g., antidiphtheritic and antitetanic sera—the amount of protein introduced is relatively very small and the material is commonly injected into the subcutaneous tissues. In consequence very few serious accidents have occurred.

Report of Case.

The case reported in this paper proves the possibility of a fatal reaction to the administration of horse serum in small doses. This case is reported, not as an objection to the routine injection of all wounded with antitetanic serum, but rather in order that a rare clinical accident may be placed upon record.

L./Sgt. E. was admitted to a casualty clearing station on Sept. 1st, 1916, at 10 15 A M. A few hours previously he had received several small bomb wounds of both hands, the right thigh, and left calf. All wounds upon examination were found to be unimportant. The patient was in good general condition; he was a well built man about 30 years of age. Pulse and temperature were normal.

As the patient had not received his antitetanic serum prior to admission, this was administered at 11.15 A.M. 750 units (U.S.A.) contained in 5 c cm. of serum were injected subcutaneously over the right pectoralis major muscle. (There is the possibility that part of the serum was injected into the muscle.) The patient remained well until 1.30 P M., two and a quarter hours after the serum inoculation, at which hour he commenced to vomit, and had a bloody diarrhœa. This gastro-intestinal disturbance was accompanied by a moderate degree of collapse. Between 1 30 and 5 P M. he vomited eight times, and had six bowel movements. All bowel evacuations contained blood. The stools were watery, and contained small particles of fæces, and a moderate amount of small blood clot. The sister in charge of the case noted no blood in the vomitus.

Examination at 5 P.M resulted in the following notes "Pulse 104, temp. 102·8° F. Patient complains of moderate headache and thirst. There is slight generalised abdominal tenderness, no rigidity. The chest is negative, no complaint of respiratory distress, despite the fact that he is cyanosed and restless. The skin is 'goose-fleshed,' and covered with a mild erythema." From 5 P.M. to 11 P.M. the patient remained in this state of moderately severe collapse. He received water by mouth, otherwise no treatment was instituted, as his condition was not alarming.

At 11 P.M., after a slight vomiting attack, the collapsed state became very severe. He became pulseless at the radials, heart beat rose to 160–170. Extreme cyanosis supervened, and restlessness increased. During the night stimulation was pressed to the utmost. Pituitary extract, 1 c cm. to the dose, was given every three hours Strychnine, 1/30 gr., was given at 11 P M., and continued in doses of 1/40 gr. every three hours He received 3 pints of saline subcutaneously during the night, and oxygen almost continuously up to the time of death. Except for the fact that he became quieter and more comfortable while receiving oxygen, there was no response to stimulation

At 6 A M. on Sept. 2nd the following notes were made "Pulse is absent at the wrist, heart rate 180 and feeble. There is a very marked purplish discoloration (cyanotic erythema) of the whole body. This discoloration disappears upon pressure and returns very slowly. The extremities are cold There has been no return of vomiting or diarrhœa "

Death ensued at 10 30 A M, apparently due to cardiac failure secondary to drop in blood pressure. Respirations during the last three hours of life were at the rate of 48–54 per minute.

Note.—Patient stated that he had suffered during the past four or five years from periodic attacks of vomiting at three or four weeks' interval, always accompanied by bloody diarrhœa.

Autopsy

Autopsy performed four hours post mortem, body is that of a well developed, well nourished man of, apparently about 30 years of age. Rigor mortis is moderate Lividity is excessive, except over the centre of chest and abdomen. There is œdema of both pectoral regions (subcutaneous saline) Wounds are trivial.

Thymus is completely atrophied.

Thyroid is somewhat enlarged and contains a few minute cysts filled with colloid

Peritoneal cavity · There is a normal amount of clear fluid, lymph nodes are larger than normal, those in the gastro colic omentum are deep red in colour Appendix normal. Vessels (veins) of splanchnic area are moderately distended with fluid blood, especially those draining duodenum and the upper part of the jejunum

Pleural cavities Both cavities are obliterated by moderately dense adhesions

Pericardial cavity Negative

Lungs Owing to the pleural adhesions present the lungs were squeezed considerably in the process of removal. The lungs are, nevertheless, voluminous and downy, except over the posterior parts, which are boggy and dark in colour. The lungs are reddish grey in colour and are covered over the whole surface with innumerable subpleural collections of deep purple coloured blood. These patches vary in size from 1·5 to 5 mm. (Note · These hæmorrhagic patches are typical of those found in anaphylaxis in the guinea pig.) Beneath the parietal pleura there is a smaller number of similar hæmorrhagic spots. The cut surface of the posterior parts exudes a considerable amount of bloody frothy fluid; the anterior portions show a dilatation of the alveoli and numerous small purplish-red spots

Heart: Normal in size and shape The right ventricle, especially, is filled with dark fluid blood and loose friable clot. Myocardium and endocardium are negative Beneath the epicardium covering the auricles there are numerous small purplish spots measuring from 1 to 2·5 mm. in diameter.

Liver. Purplish in colour, normal in size and consistence. Cut surface exudes an increased amount of fluid blood. The gall bladder is slightly distended

Spleen. Weight about 150 g, exudes upon section a moderate amount of blood. The splenic vein is distended with fluid blood

Pancreas. Negative, except for serous congestion.

Adrenals · Negative

Kidneys: Congested

Bladder: contains straw-coloured urine

Stomach and intestine The gut contains bile stained fluid fæces. No blood is present Solitary follicles are prominent. Peyer's patches are not enlarged. There is moderate superficial capillary engorgement in the stomach, particularly about both orifices.

Naked-eye diagnosis: "Anaphylactic lungs"; congestion of kidneys; chronic pleurisy; congestion of liver; multiple wounds (trivial); slight splanchnic dilatation.

Examination of heart's blood negative.

Microscopical Examination.

Examination of paraffin-embedded sections of heart, kidney, liver, mesenteric lymph nodes, and jejunum all negative but for a moderate to pronounced congestion of the small vessels, particularly in the liver, kidney, and lymph nodes.

Sections of the lung stained with hæmatoxylin and eosin and with fibrin stain reveal the following lesion. The general appearance of the sections is irregular. Different parts of the sections are composed of varying abnormalities of alveolar arrangement. In places the alveoli are compressed, their lumina being almost obliterated; in others they are greatly distended, with apparently a rupture of their walls, with the result that large irregular cavities are present. Some of the sections are composed chiefly of masses of blood clot, in which are included numerous large and small vacuoles (air bubbles). With the high power of the microscope these areas are found to represent places in which the normal alveolar arrangement is disorganised, the alveolar walls ruptured, and the resulting irregular cavities filled with red blood cells, fibrin, and serum. The arteries of the lung are normal in size and contain red blood cells; the veins are moderately distended with blood. The bronchioles are apparently contracted and many contain large numbers of red blood cells.

Discussion.

In so far as we are able to discover, the patient had not been previously wounded, nor had he received at any other time injections of horse serum. That he was an individual presenting a natural hypersensitiveness to horse serum is therefore a fair assumption. The fact that the same person is not infrequently sensitive to more than one foreign protein in all probability offers an explanation of the patient's history of repeated attacks of vomiting and bloody diarrhœa.

The foregoing case-report is that of a healthy man who collapsed following the hypodermic administration of a relatively small dose—5 c.cm.—of horse serum, and who died with symptoms during life identical with those which occur in anaphylactic shock in the dog, and with autopsy findings typical of those which are found in the guinea-pig. That the characteristic purplish congestion of the splanchnic area which is found at autopsy in dogs dying of anaphylactic shock was not more marked in our case is explained as being the result of the continuous stimulation employed in our effort to save the life of the patient.

That symptoms of respiratory spasm were not noted clinically is explained in part by the fact that, owing to pressure of work, the patient was not under constant supervision, and, more particularly, because the splanchnic reaction was predominant and so weakened the patient that expiratory dyspnœa was not sufficiently evident to be noted by the sister in charge of the case. Deficient oxygenation of the tissues during life was evidenced by the extreme degree of cyanosis.

It is now definitely established that man reacts to anaphylactic shock in one or other or both of two ways, in addition to the well-known cutaneous phenomena. Either he reacts in the manner which characterises the phenomenon in the dog—i.e., splanchnic dilatation, drop in blood pressure, cardiac failure, and death—or in the way in which the typical reaction occurs in the guinea-pig—i.e., bronchiole spasm, expiratory dyspnœa, and death from arrest of respiration.

OXYGEN AND AIR REPLACEMENT OF FLUID IN THE PLEURAL CAVITY.

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THE apparent complexity of the apparatus commonly employed for oxygen replacement may be the explanation of its infrequent performance. The following is a description of a simple method. All that is required is a Potain's aspirator or a home-made substitute for this, two bottles A and B, and an oxygen cylinder. The aspirator and bottles can easily be improvised. The method of making the latter is obvious, and the former can be made by using a bottle, similar to those figured but larger, with a Higginson's syringe fastened to the short tube, the action of which will give sufficient negative pressure.

One of the bottles (A) is fitted at (O) with a flexible rubber tube about 18 in. in length and a needle long enough to enter the pleural cavity, with a bore of 1 mm. to allow the easy escape of air. Morriston Davies's needle, made by Krohne and Seseman, is figured, as it is useful to have a tap, but an ordinary needle will do so long as the bore is of a sufficiently large diameter. The long tube is tapered slightly at (1). Bottle (B) is fitted at (3) with 2 or 3 in. of rubber tubing, which, when required, can be slipped on to the conical part of the long tube (1) of bottle A, and thus connect the two bottles. The long tube of this second bottle is also slightly tapered, so that a rubber tube from the oxygen cylinder can be pushed on with ease. Each long tube near the external opening can, after sterilising, be lightly packed with cotton-wool. The bottles are one-third filled with 1 in 20 carbolic acid solution.

To aspirate by means of automatic air replacement is very easy, and has been described in Halliday Sutherland's "Pulmonary Tuberculosis in General Practice."

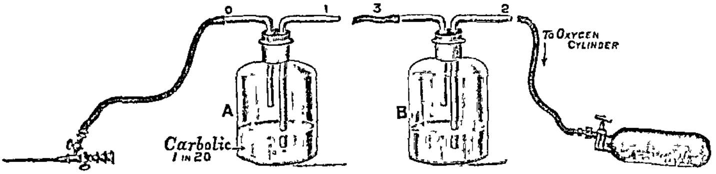
The needle of the Potain's or home-made aspirator is inserted in the seventh or eighth interspace, just outside the line of the angle of the scapula, after first anæsthetising the track with novocaine. Complete local anæsthesia should always be assured. After withdrawing a certain quantity of the fluid—say, 10 oz.—insert the needle of bottle (A) into the interspace above, again using novocaine freely. At once, with certain exceptions which will be mentioned later, air will be drawn through tube (1), bubble through the carbolic solution, and enter the pleural cavity.

Aspiration is now continued until the chest is completely emptied, allowing the patient to recline more and more as the fluid decreases, so that at last the aspirating needle is in the most dependent part of the pleural cavity. So long as aspiration is continued air will steadily flow into the pleural cavity bubbling pretty regularly through the bottle. When all the fluid has been aspirated a bubbling hissing noise will indicate that air only is being withdrawn, and the operation can cease. It is well to leave a slight negative pressure; a little of the air, therefore, is aspirated, but not enough to produce the slightest discomfort to the patient. The needles are then withdrawn.

For oxygen replacement fill both bottles (A and B) with oxygen from the cylinder. Any type of cylinder will do. Commence aspirating as before, insert needle of bottle (A) and note the rate at which bubbles of air pass through the carbolic solution and the size of them. Now turn on the oxygen cylinder which is attached to bottle (B) and let the gas bubble through at the same rate that air is bubbling through (A). This is easily determined in a few seconds. Now connect bottles (A) and (B) and continue aspirating. Pure oxygen will now be passing into the pleural cavity. To prevent the production of a positive pressure in the chest disconnect the two bottles from time to time and see if air is still drawn bubbling through bottle (A); if this is so there is, obviously, still a negative pressure and the oxygen bottle can be connected again. The small amount of air that enters does not matter. If, on disconnecting the two bottles, air does not bubble through (A), then keep them disconnected. Let the oxygen flow but escape into the air and continue to aspirate. Soon air will again be drawn through (A) and the oxygen bottle is again connected. This test of intrapleural pressure must be made from time to time.

Exceptions to Flow of Air.

The exceptions mentioned above, in which air does not flow into the pleural cavity, are as follows. The effusion may be under a positive pressure. This is unusual even when the fluid amounts to as much as seven or eight pints. Should it occur, however, aspiration must be continued until it is rendered negative; meanwhile, the rubber tube of the air needle can be clamped or bent, freeing it from time to time to discover by bubbles of air when this has been effected. It is because of these cases that it is necessary to commence aspirating before inserting the air needle, otherwise fluid will be forced into the air bottle and contaminate it, and also block the air needle. Another, though unlikely, reason for air not flowing is that the needle is not in the pleural cavity. The last and most important reason is that the air tube or needle contains fluid. These must be absolutely dry and free from bubbles. It might be thought that the thoracic suction would be sufficient to clear the tube, but in practice it will be found that this is frequently not so.



Advantages of Air or Oxygen Replacement.

So excellent and weighty are the reasons in favour of air or oxygen replacement that it would seem hardly necessary to restate them. Yet some do not know of the method, others think it neither useful nor necessary, and few employ it. I am not sure that pure oxygen has much advantage over air, except possibly for a greater curative effect. It is absorbed quicker, but the gaseous exchange that occurs leaves, after a time, a state of affairs somewhat similar in either case. The more rapid initial absorption of oxygen, however, will promote a more rapid initial expansion of the lung, if it is capable of expanding. But that one method or the other is very valuable I am convinced, and for the *following reasons*, many of which are given in Morriston Davies's "Recent Advances in the Surgery of the Lung and Pleura" (*British Journal of Surgery*, 1913) and elsewhere.

1. It is the only method by which a pleural effusion can be completely withdrawn. This is absolutely proved by radioscopy. The necessity for the *complete* evacuation, in every case, of a large serous effusion is perhaps disputable, and will not be discussed here, though I believe it to be the best treatment. If the effusion is blood, however, complete withdrawal is advisable so as to prevent the possible, and in some cases certain, onset of septic hæmothorax. In the Statistical Reports No. 5, Medical Research Committee, "On Penetrating Wounds of the Chest," in paragraph 7, "On Infected Hæmothorax," it is stated: "We aspirate the pleural cavity as dry as possible." It is impossible to get it anything like dry except by air or oxygen replacement, and if this method has been employed the "repeated aspirations" might have been prevented. If the effusion is purulent or sero-purulent then, of course, it is essential to get rid of all of it. A pneumococcal empyema *may* clear up entirely by simple aspiration, but in these cases there is a residuum of pus which must be absorbed; and, moreover, it is dangerous to advocate any method which does not involve complete drainage or complete removal of the pus. The application of the method of replacement, however, in the treatment of empyema will be dealt with more fully later.

2. It is infinitely safer to aspirate effusions by the method of replacement. No pressure changes are created in the thorax, and the accidents which may happen with ordinary aspiration—hæmorrhage from lung or pleura, sudden death by syncope, cough, albuminous catarrh, rapid re-accumulation of fluid—do not occur.

3. It is far more comfortable for the patient. With the proper use of novocaine, which should always be freely employed, there is no pain or even discomfort, and I have on many occasions seen the patient sleep through the operation, and have withdrawn as much as 7½ pints of fluid at one time without the least discomfort or distress. This would have been impossible by any other method.

4. It is good for the subsequent X ray picture, for the detail is not obscured by fluid which has been left behind and any new growth, enlarged glands, &c., can easily be seen.

5. During the absorption of the gas steady and powerful traction is exerted on the lung.

6. Pleural adhesions are less likely to form.

7. It appears to prevent reaccumulation of fluid, and to have a definite curative value.

8. It is valuable sometimes as a preliminary to operating on a large empyema.

9. Even an empyema, especially a pneumococcal empyema, can, under certain conditions, be completely withdrawn and the unopened pleural cavity be washed out. I put this forward with diffidence, firstly lest I might appear to be forgetting the great pioneer work of Audouard, Trousseau, Clifford Allbutt and Bowditch, Hamilton Roe, Hughes, and Arbuthnot Lane, which restored to medicine the effective and forgotten treatment of this condition; and secondly because there are not sufficient statistics available to form a final and sound judgment of its value. That it is invaluable in certain cases, however, I have no doubt, and apart from certain mechanical difficulties which may arise, such as obstruction of the cannula by fibrin, it is, I believe, the operation of choice.

In fact, I would say that if a child of my own had a pneumococcal empyema I should prefer first to aspirate by means of oxygen replacement, followed as soon as possible by an X ray examination. If the chest were clear and all seemed well I should be content. If signs of fluid reappeared, or if the temperature or general condition were not satisfactory, I might try one more aspiration. If this were not successful I would have a rib resection performed, a complete washing out of the pleural cavity by some non-irritating fluid, and immediate closure of the wound.

Lavage of the Closed Pleural Cavity.

The lavage of the closed pleural cavity mentioned above, is, I believe, new, and I have not yet tried it sufficiently often to justify definite statements about it. The method is as follows:—

After complete aspiration of an effusion by air or oxygen replacement, the tube of the air-needle is clamped, and the needle (or cannula) and rubber tube of the Potain's aspirator are left in position in the chest; the bottle part of the aspirator is removed and replaced by a funnel filled with warm sterile normal saline solution, which is allowed to run into the pleural cavity. When about 8 or 10 oz. have been run in the funnel is held below the level of the bed, and by the respiratory movements and by inducing the patient to cough all the saline that has been run in can be recovered. This process can be repeated.

As an illustrative case I will mention the following:—

A lance-corporal on the Cambrai front was admitted to the casualty clearing station with an attack of pneumonia. He developed an empyema. I explored and obtained thin pus which contained pneumococci. This I aspirated by oxygen replacement, and 15 oz. were withdrawn. Two days later, fluid having re-accumulated, I aspirated again by air replacement and withdrew 1½ pints of thickish yellow-green pus. After complete aspiration half a pint of warm normal saline was run through the cannula of the aspirator into the pleural cavity. This was run out again in the manner described above and was practically clear. The X ray picture showed a right pneumothorax with no fluid at all remaining, the pleural cavity being perfectly clear right down to the limits of the costo-phrenic space. No fluid reaccumulated for many days, the temperature remained normal, and the patient was evacuated to the base.

Remarks.

As early as 1882 Robert W. Parker, in a communication to the Royal Medical and Chirurgical Society, advocated the treatment of special cases of empyema by thoracocentesis and the simultaneous injection of filtered and carbolised air, pointing out that it was a "vis a tergo" and not a "vis a fronte" that displaced the fluid, and since this time Potain and many other workers have advocated this method in one form and another as the best. In the minds of those who have used it extensively there is unanimous agreement of its value. It is curious, therefore, that it is not more universally employed. Fig. 25 in Morriston Davies's new book on "The Surgery of the Lung and Pleura" is a striking testimony to the palliative value of oxygen replacement. It is a skiagram taken one month after the oxygen replacement treatment of a tuberculous pyopneumothorax. The lung has remained collapsed, but the pleural cavity is clear and the man has been able to resume active work.

In 1917 A. G., aged 19, was admitted to the Royal Herbert Hospital, Woolwich, with a tuberculous pleural effusion. He was extremely emaciated, pigmented, bedridden, and too weak to stand. Already he had been tapped four times and 112 oz. of fluid removed, but each time it rapidly recurred. Tubercle bacilli had been found in the effusion. On May 8th, soon after admission, I performed paracentesis by air replacement and withdrew 64 oz. The patient improved, but the effusion slowly reaccumulated, and on June 12th I aspirated again, this time by oxygen replacement; 2½ pints were withdrawn. He steadily improved. A little more fluid recurred at the base, but by June 30th he was infinitely better. He could walk some distance, had gained weight, and had a good colour. The pigmentation was much less, and he was able to go to his home in Devonshire.

I have chosen this example out of many cases of serous effusion and hæmothorax successfully treated by oxygen or air replacement as it affords evidence that the method advocated is of curative value as well as of great mechanical advantage.

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Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

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A NOTE ON THE
HYDROPATHIC TREATMENT OF MALARIA.

By THEODORE ZANGGER, M.D.,
ZURICH.

IN the treatment of malaria quinine stands first and foremost; next come high altitudes and arsenic. The hydrotherapeutic treatment of malaria is hardly known and seldom practised. Dr. Strasser, of Vienna, and Dr. Ziegelrot, of Berlin,[1] have written on the subject and adduced some cases, but comparative treatment of a series of cases has so far been wanting, at least as regards the medical literature in my reach. I am encouraged by a letter from Sir Ronald Ross in THE LANCET of Jan. 3rd to recall a series of cases which I treated three years ago.[2] He writes: "I wish we could cure all cases outright (with quinine); relapses ought not to be allowed to recur at all."

During the summer months of 1916 I had 82 convalescent German interned soldiers under my care in the Somvix Valley, above Disentis (Grisons), altitude 1300 m. = 4264 ft. Eighteen still suffered from malaria contracted in Corsica and Algiers; several were very anæmic and emaciated from underfeeding. They had all had lengthy consecutive courses of quinine treatment in French camps, and had already been two months at this invigorating health resort, still under quinine treatment. I discontinued the quinine and gave the patients the tepid "half baths" already described by me in THE LANCET.[3] The arms, legs, and chest of a patient lying in a bath half filled with tepid water (82° F) are rubbed for five minutes in the water, then dried, and the patient is put to bed Ambulant cases can rest for an hour and then return home These baths were repeated three times a week for three to four weeks, the average of baths per patient being eight The malaria came to an abrupt termination within 10 days During five weeks only five attacks were noted, my successor at Somvix saw two abortive cases (T under 101°), and all the 18 cases except one, who had one single slight feverish attack, were free from fever for the year during which they remained under observation I may add that Dr Brand[4] had similar results in typhoid fever

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[1] Blätter für klinische Hydrotherapie, September, 1897.
[2] Annals of the Swiss Balneological Society, Heft xiv.
[3] THE LANCET, 1902, i., 1826.

The following table shows the number of severe malarial attacks per month in 18 cases under different treatments —

		Attacks per month
1	In Corsica and France under quinine treatment (140 days)	107
2	In Somvix (alt 1300 m) under quinine treatment (60 days)	6
3	In Somvix with tepid bath treatment and without quinine (35 days)	5

The general health of all the patients rapidly improved, while the anæmia disappeared If this treatment does not appear too simple for my English colleagues to try, I should be glad to hear if any of the 14,000 (or more) patients still suffering from malaria in England profit thereby

A LARGE URETERAL CALCULUS ASSOCIATED WITH PYONEPHROSIS

BY R LEONARD LEY, M B, B C CANTAB,

ASSISTANT SURGEON GREAT YARMOUTH HOSPITAL

THE patient, a married woman, was admitted into Great Yarmouth Hospital on Feb 2nd with a large tumour of the right flank I saw her on admission, when she gave a history of increasing debility and latterly pain in the right side of the abdomen Debility had been present for about two months and pain for a fortnight She had had to get up at night about three times to micturate for a period corresponding roughly with the period of debility. She had hæmaturia about 12 years ago, but no symptoms since then until present illness

Examination —On examination she had a large fluctuant tumour reaching from the right loin to well below the anterior superior spine The tumour had the shape of the kidney moved on respiration, and was not tender No pus or blood in urine Pulse rate 118 Temperature normal in morning up to 99 6° to 101° F at night I took a radiogram next day and found a large stone at level of sacro iliac synchondrosis Diagnosis, large ureteral calculus with hydronephrosis

Operation (Feb 7th) —Patient was put in the usual position for nephrectomy and an incision made from angle of twelfth rib and spine down to a point 1 in internal to anterior superior spine, and thence parallel to Poupart s ligament and 1½ in above it to just beyond point where the deep epigastric (which was cut) passed upwards The kidney was first exposed and separated back and front, starting from above and working down wards, it was fairly adherent and below the peritoneum was freely opened, and at the same moment as this was recognised the tumour burst and much pus escaped The patient was at once turned over on her back, packs inserted, and the pus mopped clear The stone could now be felt, and I cleared it and the ureter as rapidly as possible from the underlying iliac vessels, until I had got sufficient ureter free below to clamp it The ureter was then caught in ovariotomy clamps and divided, this left the kidney attached only on its inner surface by a broad narrow pedicle This was rapidly divided by scissors and swab pressure until the renal vessels were reached, these were found near the top of the tumour, and were clamped and divided The peritoneum was swabbed out and carefully sutured a long tube put in retroperitoneally down to the ureteric stump which was ligatured, and the wound closed in layers the tube was brought out near the top of the wound The kidney must have contained about two pints of pus

On examining the specimen the stone was found tightly gripped by the much thickened ureter, which was removed with difficulty The lower part was dry, dark and shiny, and the upper part covered with a cap of phosphates, soft and mushy on top, so that quite a lot of sand was left behind when the stone was finally shelled out The stone was 3 in in length and 4 in in girth It weighed 2 oz 2 drs

The patient left the hospital in much improved health, with the wound completely healed, on March 15th

RUPTURE OF AN AORTIC ANEURYSM INTO THE PULMONARY ARTERY

BY W E PEACOCK, M D DURH

THOUGH many cases die from the exhaustion caused by the pressure and erosion before the sac ruptures, and not a few from some other disease it is agreed that death from aneurysms of the thoracic aorta is generally sudden and caused by rupture of the sac Rupture of the ascending aorta commonly takes place either externally, into the pericardial cavity, into the right pleural sac, into the right bronchus, or, more rarely, into the superior *vena cava or pulmonary artery*

The post mortem examination of the following case showed rupture into the pulmonary artery

I was first called in to see the patient a few minutes before death occurred and found a well nourished woman, aged 67 She was livid in appearance and obviously seriously ill her pulse was small, inter mittent, but not quickened Ten minutes after my arrival she died It appeared she had been suffering from a cough and pains in the chest for six months previously, during which time she had been carrying on her ordinary housework She was the mother of several children and before her cough commenced had been doing hard manual work, pushing a milk wagon from house to house Only an hour previous to my being sent for she had been out shopping when she began to "feel ill and unable to proceed alone, so that she was assisted to her home

An autopsy was obtained and an aneurysm of the ascending aorta, about the size of a Tangerine orange, discovered communicating with the pulmonary artery about an inch above its origin The communication would admit a large quill and its margins were formed of organised blood clot There was no blood in the pericardium the lungs were deeply congested and the aorta showed marked patchy atheroma The brain was deeply congested, and one kidney somewhat granular and contracted all other organs normal

Up to the present there are about 50 recorded cases of rupture into the great veins of aneurysms of the ascending aorta, or of the aortic arch, and J B Herrick has recently described a case in which the sac communicated with the left innominate vein It is surprising that many of these cases have not ended in sudden death Herrick s case lived for six weeks while Strickland Goodall and Kingsbury have recorded a case of rupture into the left pleural cavity in which death did not occur until over five weeks afterwards when the patient suddenly fell back dead

New Cavendish street W

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[4] Deutsche Medizinische Wochenschrift 1887

Medical Societies.

MEDICAL SOCIETY OF LONDON.

RE-EDUCATION OF THE AMPUTATED.

A MEETING of this society was held on March 22nd, Mr. V. WARREN LOW, the President, being in the chair.

Mr. E. MUIRHEAD LITTLE read a paper on Re-education of the Amputated. Physical re-education of the maimed, he said, might be attempted by means of massage and active and passive movements of what might be called a factitious nature, or by the performance of actual work, or by the two combined. Experience had shown that although the artificial methods might alone be practicable at first, yet the sooner actual work or play were substituted the better the result. The man set to dig or do simple carpentry could continue to do so without fatigue much longer than he could repeat dull and uninteresting movements with the Zander machine. The nerve centres were far better occupied and consequently redeveloped in the purposive efforts of work. The best way to develop stump muscles was to wear and use a prosthesis; thereby the useful muscles would be developed, while those which, owing to loss of the segment to which they were attached, had ceased to be of use would be allowed to atrophy.

To obtain the best results from the natural method of training, the efforts of the patient must be supervised and intelligently guided by instructors, who, whenever possible, should have been similarly mutilated. As a general rule the disabled man should be retrained for his old trade. There was a general consensus of opinion in France that the most suitable occupation for all kinds of maimed is agriculture in its widest sense. It must be remembered that 60 to 70 per cent. of the French wounded were employed upon the land before the war; it had even been found possible to train blind men so that they could resume work among the vines, and many blind men had been returned to other kinds of land work. Great efforts have been made in France to prevent the wounded agriculturists from drifting into the towns. Amar has devised and elaborated apparatus, such as the ergometric cycle, for the exact measuring and graphic recording of work done by the respiratory and limb muscles in various kinds of labour, for showing fatigue, and even for detecting malingering, and his experience had been that 80 per cent. of war cripples were capable of re-education and 65 per cent. could be re-educated unconditionally. The remainder needed specially adapted tools, machines, or workshops.

Importance of Temperament.

The temperament of the patient was almost more important than the stump. Some men were determined to make good; others would not try. This, though true of leg cases, was more evident in arm cases. A man who had one sound hand would learn to do everything possible with that hand and would not use a prosthesis if he could help it. At Queen Mary's Convalescent Auxiliary Hospitals the first attempts at occupational training of the amputated were begun under the direction of Mr. Dudley B. Myers in 1915. The duration of the men's stay was then too short for complete technical training, but long enough to enable their capabilities and aptitudes to be discovered, and often to lay a good foundation for subsequent education. It had been astonishing to note how in a few weeks some men developed manual skill, commonly supposed to be only attainable after years of apprenticeship. When these men had been fitted with their limbs they were passed on to the Polytechnic, the Cordwainers' Technical College, Clark's Commercial College, and other centres to complete their training. The subjects taught at Roehampton included commercial training, motor mechanism, metal turning and fitting, electricity, wood-working, boot-making and repairing, and basket-making. Training in light leather work and, lectures and demonstrations on poultry-farming were given, but were abandoned for want of sufficient support. All those who had lost the right hand were taught to write with the left. To quote Mr. Myers's report:—

> "An analysis of the applications received for training shows that over 60 distinct occupations were dealt with by the employment bureau and educational workshops. No fewer than 46 per cent. of the amputated at Roehampton returned to their own employment, while training or employment involving in most cases an entire change of vocation was arranged for a further 21 per cent. The remaining 33 per cent. were passed on to the local committees to be dealt with, being themselves unwilling to consider work or to accept training except in the vicinity of their own homes."

The work done at Roehampton and at Brighton was the model on which the Ministry of Pensions had formed its training scheme.

The subject of re-education of the amputated was naturally divisible into two sections: (*a*) the re-education of the remaining parts of the amputated limb so that it might again be used with or without, but generally with, a prosthesis; (*b*) the education of the sound limb so that it might take the place and discharge the functions of the lost part. A further subdivision was concerned with the region affected, either the upper or the lower extremity; and in the case of the upper extremities the loss of both hands so profoundly affected the problem that such cases called for special consideration.

Temporary prostheses or provisional limbs are useful in themselves, and also as a means of training and development. In the case of the lower extremity, they were too much neglected in this country in the earlier years of the war, and in the case of the upper extremity they had been, and were still being, very little used. This was a pity, for no doubt many a patient, before arm-training schools were instituted, became discouraged, and discarded his artificial arm because his stump muscles had atrophied from disease, and were temporarily unequal to the task imposed upon them.

Complications.

The re-education of the amputated might be hindered by many complications, among which were: (*a*) paralysis of the stump; (*b*) ankylosis or other defect of the remaining joint or joints—e.g., flail joint; (*c*) multiple amputation; (*d*) injuries and disabilities of the sound limb; (*e*) blindness. Such complications were more difficult to deal with in the case of arm than of leg amputations. Loss of sight had not prevented St. Dunstan's from teaching arm amputees to do cabinet-making, type-writing, poultry-farming, &c. In the case of leg amputees, there were fortunately few examples in which any of these complications had absolutely prevented the patients from walking with artificial limbs, more or less well, but their re-education demanded patience, perseverance, and time.

In the earlier years of the war the number of cases was so great that the authorities, who did not properly realise the necessity of training in the use of artificial limbs, did not allow any time for this purpose. The statistics as to the usefulness of arms, which were obtained by circularising the pensioners, were so discouraging that the War Office, on the advice of the surgeons on the Advisory Council on Artificial Limbs of the Ministry of Pensions, ordered that every man who was provided with an arm prosthesis should spend at least a fortnight after receiving it in being trained in its use in an arm-training school at a limb-fitting hospital. The Rev. Captain Rowlatt Maxwell, C.F., who had lost an arm a few inches below the elbow, was appointed chief arm instructor to the Ministry of Pensions. The course of instruction which he devised was first given at Charterhouse Military Hospital and afterwards at Roehampton and in the provincial centres. In all so-called mechanical arms, except those for kinematised stumps, the principles employed by Baliff in 1818 were applied. The artificial joints were moved by means of movements of the stump and the shoulders, and even of the opposite arm. To make and coördinate these movements exactly nerve centres and paths and muscles had to be adapted and developed to perform duties at first strange to them. In time a patient who constantly used his arm prosthesis made the movements as automatically as those of his sound hand. He had only to will to make a certain movement of the artificial appliance, and he did it without thinking of his shoulder, his stump, or his opposite arm, although one or other of these might do the work. Consideration of these new neuro-muscular arrangements and of the stereognostic sense as concerned in the use of prostheses opened up an interesting field of study for neurologists.

A few words might be added as to the re-education of kinematised stumps. The few cases admitted to the hospital for the supply of arms had been treated by the application of a Thomas arm splint, such as is used for fractures of the humerus. India-rubber cords were attached to the distal end of the splint and to the plastic motors of the stump, and the patients were directed to exercise the muscles of the motors by pulling against this elastic resistance. The strength and tension of the cords was easily varied. By using this simple appliance patients gained muscular power, and the motors were lengthened and mobilised before the prosthesis was applied. A pull of 20 lb. might be obtained from the combined biceps and brachialis motor, an amount, probably, far less than the effort of which these muscles were capable in their normal condition. In the mutilated limb, even after considerable training, fatigue was apt to occur sooner than normally. The tunnelised motors devised by Sauerbruch appeared to be less useful and more difficult to fit with arms than the club motors with bony nuclei made on the Vanghetti methods elaborated by Major M. Fitzmaurice-Kelly.

Arm Training: Interesting Tasks.

This course of arm training did not aim at teaching any trade or industry, but the patients developed the appropriate nervous control and muscular power by doing certain tasks which were interesting to them, and at the same time the nerve centres of the remaining sound limb learnt to adapt themselves to new tasks, and the necessary muscles were coördinated and developed. Carpentry, digging, loading and wheeling a barrow, and using a sledge hammer were the chief means of training. Each man made a number of wooden articles, and as he was allowed to take them away with him as proof of his skill he was interested in making them well. This kind of training offered far more encouragement and hope to the men than any scheme of exercises could. Naturally, amputees after many operations and months in hospital became profoundly discouraged and sceptical as to the usefulness of an arm, but when they saw what others could do, and found that they could emulate them, they regained hope and confidence.

Mr. Little exhibited average specimens of the carpentry. Most of the work, he said, was done with the sound hand, the artificial limb acting merely as an auxiliary. As these would be the respective functions of the two arms in after-life this training was on the right lines. Besides the work at the bench, those who had been fitted with workers' arms learnt to use the implements for the coarse work on the land mentioned above.

Practical Training in the Use of Permanent Artificial Legs.

This was instituted from the very beginning at Roehampton. It began in the limb-makers' workshops, where the patient was made to try the limb in the rough by walking at first between two parallel wooden rails on which he could rest his hands. At each end of these rails was a large looking-glass, in which he could see how he walked, so that he might correct errors. After the limb had been completed and the limb-maker was satisfied that it fitted, the wearer came into the hands of non-commissioned officers who had each lost a limb. He attended a number of walking parades at which his errors were pointed out and advice given for their correction. These were held in and out of doors, and included walking up and down slopes and steps, and on rough as well as on smooth ground. After a week of this training the patient was usually ready to pass the surgeon and to be discharged. If he failed to walk as well as could be expected he might be put back for further practice and instruction.

When a man had long worn a provisional peg-leg without a knee-joint he was apt to develop a bad gait owing to his having had to circumduct the stiff limb in bringing it forward. Practice and perseverance corrected this. Some men did not get on with their artificial legs from various causes, but the number who did well with them was very gratifying.

Now that about 500 or 600 pensioners a month were returning to receive duplicate limbs there were opportunities of reviewing the work done in the earlier years of the war, and a number of cases of hip amputation were seen who had been able to walk several miles (up to 10 miles) a day on their prostheses. "Solvitur ambulando" is, Mr. Little concluded, the key to the problem of re-education of the leg amputee.

Discussion.

The PRESIDENT said that before the war he had been struck by the mental and physical deterioration of men who had had amputations, and had always felt that purposive work was preferable to routine exercises in their re-education. He imagined that the first thing to do was to teach the men to be optimists; this was ensured by supplying teachers who themselves had had amputations.

Mr. LAMING EVANS thought that a point might be made with regard to the existence of a stimulus. In the class of case under discussion no legal action was pending and the men were financially secure; this aided treatment materially. In the early stages of exercises where volitional power was bad he thought the Zander method useful. Nearly all physical movements were best taught by mimicry. Many cases got on better with a forearm stump used as a single finger than with an artificial hand, and the more elaborate prostheses were often abandoned or used only for dress purposes.

Dr. J. B. MENNELL spoke of amputations above the knee. Some of these amputees took to the artificial limb instinctively and without trouble, others found greater difficulty. Among the latter a limp was apt to occur like that habitual to the one-sided tabetic. This suggested the need for training of coördination, a speculation borne out by experience. Such training was based upon the anatomy of the limb. Men who walked with crutches used them in different ways, and coördination between the muscles was variously affected. He directed his first effort to restoring coördination between the muscles, combined with restoration of muscle strength by faradism. Much might be done by teaching the patients to walk in front of a looking-glass. This was followed by training the stereognostic sense. Such treatment was laborious, and particular for each individual, and required a highly trained personnel.

Mr. E. M. CORNER said that when a nerve had been divided it was practically impossible to prevent it from growing again, and recent work had shown that organisms could thus be carried down to the stump. He quoted a case in which pain had recurred in the stump after excision of nerves and after an artificial leg had seemed to be successful. The pain was so bad that the patient travelled back from the West Indies. There was an apparent elongation of the fibula, due to irritating infective scar tissue, into which the regenerating nerves had grown. The lower end of the fibula, with the cicatrix, cutaneous and subcutaneous, below it, including the posterior tibial artery and nerve, were excised. The pain ceased and pressure over the fibula could be borne. Usually in the interval between the amputation and the fitting of the artificial limb the infective scar tissue became non-irritant and non-infective through the agency of the plasma and lymph. But occasionally the nerves grew into the scar tissue, reinfecting it by carrying organisms into it, or into scar tissue which had remained infective, so that pain returned after an interval of comfort. As nerves regenerated cultures could be obtained from a certain number of them. Whether pain recurred depended upon the patient's power to combat this infection. The degree of mental deterioration had a good deal to do with the amount of success attained. It was doubtful whether it was advisable to keep patients in hospital if what they learnt there could not be used in earning a livelihood.

Captain ROWLATT MAXWELL (C.F.) said that the first thing that had to be done in re-education concerned the psychological side. There was often much difficulty in the first few days, and a good deal of time had to be spent in encouraging the men. Their attitude was very different after being a short time in the arm-training school. There had not been much stump-training at the school, and the course was not long enough for vocational training. He was quite convinced that, were it not for the training provided, the percentage of men not using their artificial arms would be much higher. Many of those coming back as pensioners were found not to be wearing their arms because they did not know how to use them, some because they were painful, others because they thought that the pension would go if they became proficient. The training school gave an opportunity for the man to get fitted with the most suitable type of arm for him and also of having it thoroughly tested. He advocated that surgeons should pool their knowledge, find out what was being done in other countries, and combine with mechanical experts in devising suitable prostheses. Harm had been done by the exaggerated claims made in the press for the general usefulness of various forms of artificial limbs as demonstrable on specially trained men.

ROYAL SOCIETY OF MEDICINE.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

EXHIBITION OF CLINICAL CASES.

A MEETING of this section of the Royal Society of Medicine was held on March 26th, Mr. J. P. LOCKHART-MUMMERY, the President, being in the chair.

Case of Hemi-hypertrophy.

Dr. HAZEL H. GREGORY showed a case of Hemi-hypertrophy. The patient, a girl, aged 2½ years, had well-marked asymmetry of the body and limbs. The condition was noticed at birth, and the mother thought that the disproportion between the two sides had not increased since. The other members of the family were similarly affected. The left upper and lower extremities, and the left side of the abdomen, chest, and tongue were all obviously larger than the right. On the other hand, the right side of the head was slightly larger than the left. The size of the right side, compared with other children of the same age, and its shapeliness, seemed to indicate that this was the normal size, and that the left was abnormally developed. The measurements were:—Arm: acromion to tip of thumb, R. 11½ in., L. 13½ in.; circumference, middle of upper arm, R. 6 in., L. 7 in. Leg: anterior superior spine to internal malleolus, R. 14¾ in., L. 15¼ in.; circumference, middle of thigh, R. 10 in., L. 11½ in. Abdomen: spine to umbilicus, R. 10 in., L. 11¼ in. Thorax: spine to mid-sternum, R. 9½ in, L. 11 in. Skull: greatest semi-circumference, R. 6½ in., L. 5½ in. The left side of the tongue and face were also larger than the right. Dr. Gregory referred to other cases, notably two recorded by Dr. R. Hutchison, in which post-mortem examination had shown that glands and lymphatic structures shared in the overgrowth. It had to be remembered that some asymmetry was the rule and had been shown to be present in 90 per cent. of normal persons.

Rheumatoid Arthritis with Nodules.

Dr. D. H. PATERSON showed a case of Rheumatoid Arthritis with Nodules in a girl aged 8. There were swelling of joints and stiffness of the neck, which had come on gradually and had been present for twelve months. Swelling of the wrists was noticed first, and in May, 1919, she was admitted to hospital and nodules were found on the elbows, in association with painful wrists and ankles. There was no heart lesion. She was regarded at that time as suffering from acute rheumatism and was treated for that condition, though the absence of heart affection in a child with nodules was commented upon. On discharge there was still a large nodule on the right elbow. Since then practically all the joints had been affected, and she had never been quite well. Before readmission in February, 1920, her neck became stiff. On readmission both wrists were thickened, and the backs of the hands were swollen the interossei were atrophied. As well as the nodule on the right elbow, there was now one on the left. The epitrochlear glands were enlarged on both sides, and there were shotty glands along the posterior border of the sterno-mastoid muscle on the right side. Other joints were not now affected. The heart was normal the spleen was not enlarged. The teeth were in good condition. The tonsils had been removed. The temperature had remained normal under observation Radiograms showed no changes. The diagnosis o fibrous rheumatism had been suggested, but it was a disease which had been described in adults, and in i the nodules were more diffuse. The Wassermann reaction was negative.

Dr. FREDERICK LANGMEAD said that in view o the character of the joint swelling, the enlargement o epitrochlear, sterno-mastoid, and axillary glands, and the negative findings by X rays he fully agreed with the diagnosis. The point which interested him was the association of the nodules. Flat, fibrous, plaque-like nodules were, of course, not unusual in rheumatoid arthritis, and were often found in the same situation but the nodules in this case were more like the nodules of acute rheumatism, and were said to vary considerably in size and to disappear quickly. Such a case seemed to support the view of those who believed that rheumatoid arthritis and acute rheumatism were due to the same infection. Rheumatoid arthritis was, however, a symptom-complex in his opinion, and capable of resulting from various infections. Perhaps the explanation of the present case was that it was one o the rare examples of rheumatoid arthritis in which the symptom-complex had followed an initial infection by the cause of acute rheumatism.

Anæmia with Splenomegaly.

Dr. PATERSON also showed a case of Anæmia with Splenomegaly in a child aged 4 months, who was under the care of Dr. F. J. Poynton. A swelling had been noticed in the abdomen for a fortnight. Since the age of 2 weeks he had been losing weight, and had always been pale. For two weeks before admission there had been loose green stools. Cardio-vascular and respiratory systems were apparently normal. The left flank was occupied by a large mass, which seemed to be the spleen, and which extended forwards to within an inch of the umbilicus and reached to the pelvic brim. The liver was also large, reaching 1½ fingers' breadth below the costal margin at the ninth rib. Lymphatic glands were not large. The stools and urine were now normal. A blood examination showed: red blood cells, 3,440,000; white cells, 18,000; hæmoglobin, 30 per cent.; colour index, 0·4. Differential count: polymorphs, 29 per cent.; small lymphocytes, 35 per cent.; large lymphocytes, 16 per cent.; transitionals, 1 per cent.; neutrophilic myelocytes, 12 per cent.: basophilic and myelocytes, 3 per cent.; normoblasts, 2 per cent.; and megaloblasts, 12 per cent. Polychromatophilia was present. The Wassermann reaction was negative. The case was regarded as one of v. Jaksch's anæmia.—Dr. F. PARKES WEBER held that considering its present size the spleen must have been enlarged at birth. The younger the child the more would one expect the blood picture to be disturbed; it was therefore not surprising to find so many myelocytes and nucleated reds.

Another Case of Splenomegaly.

Dr. PATERSON also showed a second case of Splenomegaly in a girl aged 5 years, under the care of Dr. R. Hutchison. The patient was somewhat pale and puffy, with flabby muscles and slight enlargement of the spleen and liver. The lymphatic glands were not enlarged. The girl was prone to "dirt-eating." On admission the red blood corpuscles numbered 3,680,000 and white corpuscles 7200, of which polymorphs were 46 per cent.: small lymphocytes, 32 per cent.; large lymphocytes, 19 per cent.; large mononuclears, 2 per cent.; and myelocytes, 1 per cent. The hæmoglobin was 32 per cent. and colour index 0·4. A week later the spleen was noted to be larger, the red blood cells had diminished by about one million and the hæmoglobin by 7 per cent., while the white cells had increased to 14,000. The differential count remained approximately the same, but the myelocytes had increased to 3 per cent., and 4 per cent. nucleated red cells were noted. The Wassermann reaction was negative The view was expressed that possibly the case was an example of a late stage of recovering splenic anæmia of the infantile type (v. Jaksch's anæmia)

MIDLAND MEDICAL SOCIETY.

Orthopædic Treatment in War Surgery.

AT a meeting of this society, held at Birmingham on March 3rd, with Mr. W. A Loxton, the President, in the chair, a demonstration of the results of Orthopædic Treatment in War Surgery was given, and 30 illustrative cases were shown —Dr J. F Atkins, of the Uffculme Limb Fitting Centre, described various types of artificial limbs, and emphasised the importance of the retention of as long a stump as possible, and of its preparation for a permanent limb by the use of a temporary limb or plaster of-Paris pylon. He then discussed the relative value of the various amputation operations commonly performed The results of psychotherapy in the treatment of functional contractures and loss of function were demonstrated by the medical officers from Hollymoor, Highbury, and the Out patients' Clinic, Broad street, and cases of complete recovery of function were shown.—Mr. H. H. Sampson (Hollymoor) showed the results of four cases of Arthroplasty for Bony Ankylosis of the Elbow. He had retained the epicondyles, *removing half the olecranon process, the greater portion of the coronoid process, and the head of the radius. The free flap of fascia from the thigh* was then interposed between the bone surfaces The cases showed a good range of movement with little lateral mobility. The removal of large flaps of fascia from the thigh had not in his experience resulted in muscle hernia —Captain J. A. Dickson (Highbury Hospital) showed a series of cases of tendon transplantations for partial and complete loss of power in the extensors of the wrist, fingers, and thumb. He advised this operation only when nerve suture had been found impracticable. The chief points in the operation were (1) the importance of direct pull of the muscle from its origin to its new insertion; (2) the tension at the time of suture; and (3) the complete burying of the transposed tendons in their receiving tendons —Captain Dickson then demonstrated the method adopted for gradual correction of disabilities of the wrist and hand. — Captain F. W. Stuart (Hollymoor) showed the results of bone-grafting in cases of loss of continuity of the bones of the extremities. One case was shown two years after operation. The grafted bone had assumed the size of the receiving bone, and was itself developing a medullary cavity. He emphasised the importance of the preliminary excision of scar tissue, and of making the bone graft, when used, of sufficient strength to withstand the strain of function and as long as the anatomical condition of the receiving bones would allow. Captain Stuart also showed cases to illustrate the results of Radical Sequestrotomy in the case of the Chronic Bone Sinus —Major Naughton Dunn then showed three cases, the successful treatment of which was, he said, a result of our war experience. The first was a case of an officer with ankylosis of the right inferior radio ulnar joint in a full supinated position The operation, suggested by Dr Baldwin, of San Francisco, had resulted in free complete controlled movements of pronation and supination, and consisted in removal of a portion of the ulnar just above the inferior articulation, so that the movements could take place at this false joint The second case was *the result of* arthrodesis of the humerus and scapula, *after complete* loss of the upper half of the humerus The patient had a short but strong arm, with *free controlled* movement in a certain range. The third case showed the successful treatment of a severe gunshot wound of the upper third of the thigh.

SOCIÉTÉ DE THÉRAPEUTIQUE DE PARIS.

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[1] THE LANCET, Feb 7th, 1920, p 326

patients in hospital if what they learnt there could not be used in earning a livelihood.

Captain ROWLATT MAXWELL (C.F.) said that the first thing that had to be done in re-education concerned the psychological side. There was often much difficulty in the first few days, and a good deal of time had to be spent in encouraging the men. Their attitude was very different after being a short time in the arm-training school. There had not been much stump-training at the school, and the course was not long enough for vocational training. He was quite convinced that, were it not for the training provided, the percentage of men not using their artificial arms would be much higher. Many of those coming back as pensioners were found not to be wearing their arms because they did not know how to use them, some because they were painful, others because they thought that the pension would go if they became proficient. The training school gave an opportunity for the man to get fitted with the most suitable type of arm for him and also of having it thoroughly tested. He advocated that surgeons should pool their knowledge, find out what was being done in other countries, and combine with mechanical experts in devising suitable prostheses. Harm had been done by the exaggerated claims made in the press for the general usefulness of various forms of artificial limbs as demonstrable on specially trained men.

ROYAL SOCIETY OF MEDICINE.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

EXHIBITION OF CLINICAL CASES.

A MEETING of this section of the Royal Society of Medicine was held on March 26th, Mr. J. P. LOCKHART-MUMMERY, the President, being in the chair.

Case of Hemi-hypertrophy.

Dr. HAZEL H. GREGORY showed a case of Hemi-hypertrophy. The patient, a girl, aged 2½ years, had well-marked asymmetry of the body and limbs. The condition was noticed at birth, and the mother thought that the disproportion between the two sides had not increased since. The other members of the family were similarly affected. The left upper and lower extremities, and the left side of the abdomen, chest, and tongue were all obviously larger than the right. On the other hand, the right side of the head was slightly larger than the left. The size of the right side, compared with other children of the same age, and its shapeliness, seemed to indicate that this was the normal size, and that the left was abnormally developed. The measurements were:—Arm: acromion to tip of thumb, R. 11½ in., L. 13½ in.; circumference, middle of upper arm, R. 6 in., L. 7 in. Leg: anterior superior spine to internal malleolus, R. 14¼ in., L. 15¼ in.; circumference, middle of thigh, R. 10 in., L. 11½ in. Abdomen: spine to umbilicus, R. 10 in., L. 11¼ in. Thorax: spine to mid-sternum, R. 9½ in, L. 11 in. Skull: greatest semi-circumference, R. 6½ in., L. 5½ in. The left side of the tongue and face were also larger than the right. Dr. Gregory referred to other cases, notably two recorded by Dr. R. Hutchison, in which post-mortem examination had shown that glands and, lymphatic structures shared in the overgrowth. It had to be remembered that some asymmetry was the rule and had been shown to be present in 90 per cent. of normal persons.

Rheumatoid Arthritis with Nodules.

Dr. D. H. PATERSON showed a case of Rheumatoid Arthritis with Nodules in a girl aged 8. There were swelling of joints and stiffness of the neck, which had come on gradually and had been present for twelve months. Swelling of the wrists was noticed first, and in May, 1919, she was admitted to hospital and nodules were found on the elbows, in association with painful wrists and ankles. There was no heart lesion. She was regarded at that time as suffering from acute rheumatism and was treated for that condition, though, the absence of heart affection in a child with nodules was commented upon. On discharge there was still a large nodule on the right elbow. Since then practically all the joints had been affected, and she had never been quite well. Before readmission in February, 1920, her neck became stiff. On readmission both wrists were thickened, and the backs of the hands were swollen; the interossei were atrophied. As well as the nodule on the right elbow, there was now one on the left. The epitrochlear glands were enlarged on both sides, and there were shotty glands along the posterior border of the sterno-mastoid muscle on the right side. Other joints were not now affected. The heart was normal; the spleen was not enlarged. The teeth were in good condition. The tonsils had been removed. The temperature had remained normal under observation. Radiograms showed no changes. The diagnosis of fibrous rheumatism had been suggested, but it was a disease which had been described in adults, and in it the nodules were more diffuse. The Wassermann reaction was negative.

Dr. FREDERICK LANGMEAD said that in view of the character of the joint swelling, the enlargement of epitrochlear, sterno-mastoid, and axillary glands, and the negative findings by X rays he fully agreed with the diagnosis. The point which interested him was the association of the nodules. Flat, fibrous, plaque-like nodules were, of course, not unusual in rheumatoid arthritis, and were often found in the same situation, but the nodules in this case were more like the nodules of acute rheumatism, and were said to vary considerably in size and to disappear quickly. Such a case seemed to support the view of those who believed that rheumatoid arthritis and acute rheumatism were due to the same infection. Rheumatoid arthritis was, however, a symptom-complex in his opinion, and capable of resulting from various infections. Perhaps the explanation of the present case was that it was one of the rare examples of rheumatoid arthritis in which the symptom-complex had followed an initial infection by the cause of acute rheumatism.

Anæmia with Splenomegaly.

Dr. PATERSON also showed a case of Anæmia with Splenomegaly in a child aged 4 months, who was under the care of Dr. F. J. Poynton. A swelling had been noticed in the abdomen for a fortnight. Since the age of 2 weeks he had been losing weight, and had always been pale. For two weeks before admission there had been loose green stools. Cardio-vascular and respiratory systems were apparently normal. The left flank was occupied by a large mass, which seemed to be the spleen, and which extended forwards to within an inch of the umbilicus and reached to the pelvic brim. The liver was also large, reaching 1½ fingers' breadth below the costal margin at the ninth rib. Lymphatic glands were not large. The stools and urine were now normal. A blood examination showed: red blood cells, 3,440,000; white cells, 18,000; hæmoglobin, 30 per cent.; colour index, 0·4. Differential count: polymorphs, 29 per cent.; small lymphocytes, 35 per cent.; large lymphocytes, 16 per cent.; transitionals, 1 per cent.; neutrophilic myelocytes, 12 per cent.: basophilic and myelocytes, 3 per cent.; normoblasts, 2 per cent.; and megaloblasts, 12 per cent. Polychromatophilia was present. The Wassermann reaction was negative. The case was regarded as one of v. Jaksch's anæmia.—Dr. F. PARKES WEBER held that considering its present size the spleen must have been *enlarged at birth*. The younger the child the more would one expect the blood picture to be disturbed; it was therefore not surprising to find so many myelocytes and nucleated reds.

Another Case of Splenomegaly.

Dr. PATERSON also showed a second case of Splenomegaly in a girl aged 5 years, under the care of Dr. R. Hutchison. The patient was somewhat pale and puffy, with flabby muscles and slight enlargement of the spleen and liver. The lymphatic glands were not enlarged. The girl was prone to "dirt-eating." On admission the red blood corpuscles numbered 3,680,000 and white corpuscles 7200, of which polymorphs were 46 per cent.: small lymphocytes, 32 per cent.; large lymphocytes, 19 per cent.; large mononuclears, 2 per cent , and myelocytes, 1 per cent The hæmoglobin was 32 per cent and colour index 0 4 A week later the spleen was noted to be larger, the red blood cells had diminished by about one million and the hæmoglobin by 7 per cent , while the white cells had increased to 14,000 The differential count remained approximately the same, but the myelocytes had increased to 3 per cent , and 4 per cent nucleated red cells were noted The Wassermann reaction was negative The view was expressed that possibly the case was an example of a late stage of recovering splenic anæmia of the infantile type (v Jaksch's anæmia)

MIDLAND MEDICAL SOCIETY

Orthopædic Treatment in War Surgery

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Reviews and Notices of Books.

AN INTRODUCTION TO THE STUDY OF CYTOLOGY.

By L. DONCASTER, Sc.D., F.R.S., Derby Professor of Zoology in the University of Liverpool. Cambridge University Press. 1920. Pp. 280. 21*s*.

THIS is not a text-book in the ordinary acceptation of the term. It aims at giving an account of the more important facts of animal cytology, but its chief purpose is to interest the student in the subject by pointing out some of the ways in which cytological investigation is related to the great fundamental problems that lie at the root of all biological research. The plan is based on courses of lectures given by the writer during six years at Cambridge. The scope will be indicated by a brief statement of the chief subjects dealt with. Without going fully into cell-physiology, the author deals with the cell, its organs, the nucleus, mitochondria and Golgi apparatus, with cell-division, amitotic and mitotic chromosomes, achromatic spindle, the centrosome and its origin, cytoplasmic division, and multipolar spindles (pp. 1–58).

While the chromosomes have attracted much attention in consequence of the probability that in them is to be found the solution of some of the fundamental problems of heredity, yet the nature and mechanism of the achromatic spindle offers problems hardly less fascinating, and perhaps equally far-reaching as regards the nature of the vital process. Having dealt with cell-division in ordinary body cells, the author proceeds to study the maturation of the germ cells, spermatogenesis, maturation of the egg and the meiotic phase, the cytoplasmic structures in spermatogenesis and oögenesis, fertilisation and segmentation (pp. 59–124). In all organisms in which sexual reproduction occurs the doubling of the number of chromosomes in the zygote is avoided by the process known as "reduction of the chromosomes"—a process which is fully explained. In the development of the egg the process is exactly analogous to that in the spermatozoon, allowance being made for the minuteness of the one and the relatively large inert often yolk-laden egg. The details of fertilisation and segmentation are set forth in a very attractive form and the probable forces at work discussed. This leads on to parthenogenesis—a mode of reproduction which occurs in nature under a number of different circumstances and most frequently alternating more or less regularly with bisexual reproduction. Artificial parthenogenesis (pp. 140-151) has recently attracted much attention, and has been more particularly studied in sea-urchins' eggs, by the action of various mineral salts and other organic acids.

The cytological basis of sex-determination is next considered, the hymenoptera, perhaps, are the best-known examples. As to germ-cell determinants, all the evidence points strongly to the conclusion that in many animals sex is determined by, or at least is correlated with, the presence or absence of a particular chromosome in the fertilised egg, or among parthenogenic animals in the egg after maturation. The theory of the individuality of the chromosomes is next exemplified and discussed (pp. 172–205). A very interesting chapter is the one on the mechanism of hereditary transmission, with full discussion from Weismann's famous theory of the germ plasm (1885) onwards. "If the facts of heredity were not so familiar they would be regarded as the most wonderful in nature, and it is not surprising that one of the chief aims of cytologists has been to find some explanation of this mechanism," and this the author proceeds to do, discussing the rôle of the nucleus, chromosome, the possible relation between Mendelian segregation and chromosome behaviour, specific chromosomes and sex-determination, and cytoplasm in development and heredity (pp. 206–265). There are 24 plates, 31 text-figures, and a useful bibliography running to 10 pages.

In this monograph zoology and physiology go hand-in-hand. The author has given a most suggestive as well as comprehensive survey and critical exposition of the newer facts and aims of cytology, but even without the great array of facts a real comparative cytology can hardly be said to exist, so vast is the field still unexplored. However, the author has made a worthy contribution to a fascinating and progressive subject.

MODERN SPIRITISM.

By A. T. SCHOFIELD, M.D. London: J. and A. Churchill. 1920. Pp. 260. 3*s*. 6*d*.

SPIRITISM, says Dr. Schofield, may be regarded either as a religion or as a science. As a religion its adherents "are now numbered by millions," the most prominent of whom, in this country, are Sir A. Conan Doyle and Sir Oliver Lodge. As a science the phenomena with which it deals may be classified as "physical" (levitation, astral emanations, materialisation of spirits, &c.), and "psychical" (e.g., communion with the dead, automatic writing, cross-correspondence, &c.). Dr. Schofield's purpose is to examine critically the claims of modern Spiritism, and to show its incompatibility with Christianity. In this endeavour he may be said to have failed conspicuously. The main substance of his book appears to have been gleaned from newspaper cuttings and extracts from books thrown together in utterly illogical order. As an example, Eusapia Palladino's conviction of fraud is laid bare, but two pages later, following a paragraph which is headed "proved facts," he describes an investigation of Eusapia at Naples, at which "three clever sceptics" (with names mis-spelt) "were absolutely convinced of the genuineness of the physical phenomena shown."

Dr. Schofield believes in demoniac possession and says that such possession by the devil, "if proved, turns the whole position of those Spiritists who declare the next world is denizened only by the disembodied spirits of the dead." He classifies cases of multiple personality among the insane, and says that they "are not very rare in asylums." In physics the author is on no safer ground. He writes that "vibrations from 16 to 36,000 per second are known to us as sounds. From 36,000 to 1,000,000,000 (a pretty large range) they are imperceptible. Above 1,000,000,000 they [presumably aerial vibrations !] are perceived as electricity. From 2,000,000,000 to 250 billions (!) (a still greater jump) the vibrations are again imperceptible. From 250 billions to 1000 billions they are again seen as light and colour, from infra-red to ultra-violet." And so on, adding an ingenuous footnote that these numbers are "wholly inconceivable."

Other examples of the same kind of imperfect knowledge are not difficult to find. It is surely high time that the medical student received adequate training in the principles of psychology and physics.

HENRY QUIN, M.D. (1718–1791).

By T. PERCY C. KIRKPATRICK, M.D., M.R.I.A., Fellow and Registrar of the Royal College of Physicians of Ireland. Dublin: At the University Press. 1919. Pp. 66. 10*s*. 6*d*.

Dr. Henry Quin is one of those of whom Shakespeare said,

> "for if our virtues
> Did not go forth of us, 'twere all alike
> As if we had them not."

For though he was a prominent physician in his day and a figure in Dublin society, yet, says Dr. Kirkpatrick, "he was soon forgotten after his death, and there is not, as far as we know, any record of his life among the published biographies of distinguished Irishmen." In August, 1918, a bust of Quin was presented to the Royal College of Physicians of Ireland by Dr. Alexander Morison, and this presentation moved Dr. Kirkpatrick to pay "a well-merited if tardy tribute to one to whom Ireland owes much." One of Quin's relatives was James Quin, the actor, who died in 1766.

Dr. Kirkpatrick found some difficulty in tracing the genealogy of Henry Quin; *his father was undoubtedly* Thomas Quin, a well-known Dublin apothecary, and his grandfather was presumably another Thomas Quin, a bricklayer of Castleknock Henry Quin graduated a Bachelor of Arts at Trinity College, Dublin, in 1737, being then 19 or 20 years of age He then proceeded to the study of medicine, where is not known, but in 1743 he was admitted Bachelor of Medicine of the University of Dublin After his graduation in medicine he presumably went abroad for study, as in 1749 he reappeared in Dublin as a Doctor of Medicine of Padua and in the same year he was elected King's Professor of the Practice of Physic in the Medical School of Trinity College In the following year he was admitted Doctor of Medicine of the University of Dublin, and in 1754 a Fellow of the College of Physicians His appointment as King's Professor very soon put him in the way of obtaining a fashionable practice, for in 1750 he was sent for by Dr Patrick Delany, Dean of Down, to attend his wife, the celebrated Mrs Delany the friend of Swift, and the introducer of Fanny Burney to Court The wheels of his life ran smoothly, in 1753 he married Miss Monck whose brother had married a daughter of the first Duke of Portland She brought him £5000 and an entry into the highest circles of Dublin society, where he shone not only by his "great erudition,' but also by being an accomplished performer on the harpsichord He was, in addition, a virtuoso in the matter of cameos, and attained such skill in the art of making artificial cameos and intaglios with glass paste "as even to deceive the proprietor of a fine original He was the patron and teacher of the well known James Tassie, who produced many and excellent copies of cameos, and he befriended and helped to train William Mossop, the medallist Of Quin's medical work but little is known he was seven times President of the College of Physicians, and he seems to have noted the presence of tubercles and inflammatory symptoms in two cases of acute meningitis, though, of course, he had no idea as to the nature of the tubercles He died in 1791, leaving behind him a considerable fortune

Of his three sons, Charles William, the second was also a member of the medical profession, and, like his father, was interested in apoplexia hydrocephalica—i e, acute meningitis He wrote a book entitled, "A Treatise on Dropsy of the Brain published in 1790, wherein he shows that he had grasped the difference between chronic hydrocephalus and meningitis He died in 1818 His younger brother, Henry George, apparently had no profession, but was able to devote his time to art and foreign travel He left a diary behind him, which came into Dr Kirkpatrick's possession and from which he gives some interesting extracts He obtained the post of Second Chamberlain in the Court of the Exchequer, which carried with it the not over generous salary of £52 3s 4d per annum He collected a small but valuable library, which he bequeathed to Trinity College, one of the books being a fine copy of Virgil, printed in 1470 Dr Kirkpatrick's little book is a pleasant record of an interesting society, although we cannot agree in his estimate of the Quin family as remarkable Rather we should say they were intelligent people, who had an easy time and were able to gratify their tastes

JOURNALS

Journal of Anatomy Vol LIV, Part I October, 1919 Cambridge University Press Pp 1–100 7s 6d net —In the first and longest paper in this number Professor Arthur Thomson, writing on the ripe Graafian follicle, makes an important contribution to the study of the normal human structure Owing to the plenitude of detail the paper does not easily admit of abstraction, but will repay reading in full Professor Thomson adopts the view that the discus may be placed on any part of the circumference of the follicle, against the well known doctrine of Nagel and his followers He also gives reasons for supposing that the bodies which were described among the follicular cells by Call and Exner some 30 years ago are in reality groups of follicular cells which are undergoing changes that ultimately lead to the appearance of the liquor folliculi, in this, of course he supports the opinions previously advanced by Nagel Winiwarter has described plain muscle cells in the outer theca in the cat, and Professor Thomson claims that they are also present in the human follicular wall An interesting experiment by Professor J A Gunn is incidentally introduced in this connexion, demonstrating (we believe for the first time) the presence of the contractile fibres in the ovary —Professor F Wood Jones, in describing voluntary muscular movements in cases of nerve lesion, has had the advantage of having seen the actual condition of the nerve in every case and of having checked the findings by electrical test He has produced a collection of facts of great practical interest, and some of the actions he demonstrates will probably be new to his readers It may be pointed out that in some things he flogs a horse which was never alive, for much of the erroneous teaching he deplores had no support among anatomists —Professor F G Parsons and Mrs Lucas Keene deal with the sexual differences in the English skull as seen in the classes from which medical students are drawn While the facial index is the same a definite distinction comes in the length, height, and interzygomatic width, and the most striking difference perhaps, is found in the width of the palate —Professor T B Johnston gives a detailed account of the ileo cæcal region in *Callicebus personatus*, and goes into a general consideration of the morphology of the mammalian cæcum, which he considers to have been primitively an asymmetrical outpouching —Dr F H Edgeworth dealing with the laryngeal muscles in Sauropsida, derives them from a constrictor œsophagei Fuller description of the obliquely cut sections, with one or two reconstructions, would greatly aid comparison between the sauropsidan and mammalian conditions —Dr A Blackhall Morison describes a heart with persistent foramen primum, of clinical interest in that it was found in a woman of 43 the mother of five children —The number closes with a memorial notice of the late Professor Alexander Macalister, from the pen of Professor E Barclay Smith, who was associated with him for many years The notice is accompanied by an excellent portrait

Journal of Hygiene Vol XVIII, No 4 February, 1920 Edited by Professor G H F NUTTALL, F R S —The principal contributions to the February issue of this journal are two by Dr E C Hort one on the cultivation of aerobic bacteria and one on the reproduction of aerobic bacteria The remaining papers cover a wide field of scientific activity, as will be seen in the following short notices of each communication The first paper by Dr Hort dealing with the technique of the isolation of single bacteria is a useful critical account of the numerous methods which have been advocated Most of the methods described suffer from a number of defects, the chief being due to optical difficulties Dr Hort favours the perforated plate method owing to its comparative simplicity, rapidity, and inexpensiveness How far these methods are laboratory "tricks and of no real value is not fully discussed Dr Hort's principal paper deals with the reproduction of aerobic bacteria It is the continuation of a series of papers dealing with the same subject which have been published from time to time since 1916 The main thesis of the contribution is that the simple bacteria do not divide always or only by simple fission, but also by more complicated processes —The *Diets of Labouring Class Families during* the Course of the War, by Margaret Ferguson, M A An account is given of an inquiry as to the diets of five families during 1917 and 1918 The children of three of the families were below the average in weight and height, due probably to an insufficient supply of food In a fourth family it was found that children who had suffered from low diet as shown by weight and height, recovered and gained normal development when supplies became plentiful The problem is shown to be economic Only one of the families studied "could afford even the freedom of choice afforded by the rationing scheme —A Polyvalent Vaccine in the Treatment of Bacillary Dysentery in East Africa by W H Kauntze The author describes in detail the symptoms and physical signs of bacillary dysentery in the African native and the appropriate treatment. Vaccine therapy in his experience is valuable. His method of killing the organism in the preparation of the vaccine was by means of carbolic acid.—Cats and Human Diphtheria, by W. G. Savage, M.D. It has been commonly believed since the work of Klein (1888) and others that cats may suffer from a naturally acquired disease caused by the diphtheria bacillus, and that, further, they may act as carriers of this organism. This belief is rudely shaken by Dr. Savage's work. He shows that in the throat of normal cats there is found an organism morphologically resembling *B. diphtheriæ*, but differing from it in certain respects in culture, and in being non-pathogenic to guinea-pigs. Further, the examination of cats which have been in close association with cases of human diphtheria failed to reveal the diphtheria bacillus. Experimentally, the injection of cultures of *B. diphtheriæ* under the skin of kittens produced illness and death, with pathological lesions characteristic of diphtheria. But the feeding of kittens with cultures of the bacillus produced no effects, and attempts to infect the animals by swabbing the nose and throat with massive doses were uniformly negative, the organisms so introduced disappearing within 24 hours. It is apparently safe to conclude that cats are not associated in the spread of diphtheria.—A Note on "Defence Rupture" and the Action of Electrolytes, by W. Cramer and W. E. Gye. A reply, in the form of a description of experiments, to criticisms by C. Shearer in the previous number of the *Journal of Hygiene*.—The Contamination of Oysters, by A. T. Nankivell, M.D., and Sergeant J. M. Stanley, A.A.M.C. In this paper the author shows that the contamination of Poole Harbour comes in with the flood tide from the open sea.

The Journal of the Royal Naval Medical Service for January (John Bale, Sons, and Danielsson, Ltd. 6*s.*) has commenced the publication of papers on the Naval Medical History of the War; they will continue through the next two years and, judged by the papers that appear, will be of great importance to the medical historian. Temporary Surgeon-Lieutenant W. M. Fairlie gives an account of poisoning by nitrous gases, chiefly the result of the burning of cordite. They act in very high dilution with a period of latency, which is usually about 12 hours; early symptoms of irritation to the air-passages appear, later acute pulmonary œdema going on to frothy sputum and cyanosis, followed by acute emphysema and cardiac distension. As to treatment, emetics and atropine were of use early; later, bleeding up to 12 ounces. The viscidity of the blood observed suggests that intravenous saline might have been of use, as in cholera.—Surgeon-Commander R. C. Munday, has a paper on Ventilation and Heating of Ships, much of which has already appeared in print in Pryor's "Naval Hygiene," reviewed by us on Nov. 8th, 1919. A tabular view of the efficiency of each fan mentioned would have been useful. The heating of ships appears to be secured by putting heaters into the delivery trunks for large spaces, while in small compartments like cabins air is supplied cold and heating is secured by radiators.—Commander P. T. Sutcliffe tells how the official diets were varied through the war in consequence of the limitation of essential food-supplies at various periods.—Surgeon-Lieutenant (D.) G. E. Wood, R.N.V.R., has a very good paper on Dentistry, showing how small was the establishment of dentists when war began, and how circumstances and experience proved the need of a larger staff, and how wisely the increase was made. At first there were 23 civilian dental surgeons, all on shore; they were next sent to naval hospital ships with the Fleet; then those serving afloat were given commissions in March, 1915; then in 1918 all ashore as well as afloat were given commissions, and at the armistice there were 83 in service, many in battleships and cruisers. He mentions a case in which the patient had had three teeth knocked out, but they were treated and replaced, and became fixed quite satisfactorily.—Temporary Surgeon-Lieutenant T. Beaton gives a very valuable paper on the mental cases, which is to be continued.—The Editor expresses in Latin his regret that he is leaving—a regret all will share.

In the *Annales de Dermatologie et de Syphiligraphie* (VIe Serie, Tome 1) appears an original article by Cordier and Dechaume on Syphilitic Diabetes and Glycosuria of the Tertiary Period. The authors describe the various clinical types of diabetes that may be attributed to syphilis. In the secondary stage a mild and transitory glycosuria is occasionally observed. In the tertiary stage various forms appear: (1) a form associated with some cerebral lesion; (2) a form associated with lesions of the pancreas; (3) a type which is apparently independent of any cerebral or pancreatic lesion. In addition to the above, diabetes has been found in association with parasyphilis and hereditary syphilis. The characteristics of the different forms of diabetes are given, together with a very complete summary of previous observations on the subject. Various conditions should be satisfied before a case of diabetes is put down to syphilis: (1) the appearance of the diabetes should be subsequent to the infection with syphilis; (2) it should appear at the same time as other syphilitic manifestations; (3) antisyphilitic treatment should cure the diabetes as well as the other lesions; (4) antidiabetic treatment should be without effect. These conditions are not absolute and vary in importance as indications of the true nature of the diabetes. Indeed, according to Troller, the fourth condition is valueless, since all varieties of diabetes are to some extent improved by general treatment. The results of treatment in cases of diabetes due to syphilis are very encouraging. Large doses of arsenical compounds should, however, be avoided. The authors suggest that syphilis is the probable explanation of those curious cases of diabetes occurring in husband and wife, an association which has given rise to a hypothesis of a diabetes that is infectious in origin. In a series of 516 diabetics collected by Senator the husband or wife, as the case may be, developed diabetes subsequently in 18 cases (3·5 per cent.). No particular attention was paid to a history of syphilis, and it is possible that a careful investigation along such lines would have revealed the explanation of this conjugal diabetes. At any rate, the possibility of syphilis should always be kept in mind when dealing with such cases.

Bulletino delle Scienze Mediche. 1920. XCI. Bologna: Piazza Galvani.—This journal, edited by Professor Ercole Giacomini, enters this year the eighth volume of the ninth series. It was founded in 1829, and constitutes the official report of the Medico-Chirurgical Society of Bologna, with Professor Guido Vernoni and Professor Sherardo Forni as editorial secretaries. In addition to the report of the society's meetings in 1919, the January number contains two original communications. The first is by Professor Vernoni on the dialysable and non-dialysable alkaline content of normal and antitetanic horse serum. The alkalinity of the blood plays an important, although imperfectly understood, part in the production of "shock," as shown by Lewis, Fullerton, Moore, and others in this country, and Professor Vernoni has conducted numerous researches in this respect on the serum of normal horses and of those vaccinated against tetanus toxin. In the latter he found that the total alkalinity—i.e., both proteid and dialysable—was increased, and, moreover, was united to the proteins in a different manner to that of normal serum. The second paper is by Dr. Frank Fama on the colour reactions in protozoal blood infections to eosin. After numerous experiments he has developed a technique which seems to give highly satisfactory results. Its chief point of interest lies in the fact that the stain and the mordant are in two separate solutions. The former is a solution of 5 per cent. bromo-ammoniate of eosin and 20 per cent. methylene-blue in anhydrous methyl alcohol, the latter a solution of triphenylmethane. These two are mixed, just before use, in proportion of about 3 to 1, and the slide with the blood-smear is prepared in the usual way. The result is that the leucocytic and protozoic chromatin are coloured violet, the eosinophile granules red, the basophiles blue, and the mononuclear protoplasm pale blue. The preparations are not decolourised by xylol balsam and are permanent.

THE LANCET.

LONDON: SATURDAY, APRIL 3, 1920.

Medical Benefit in 1920.

THE Medical Benefit Regulations in their final form for the year 1920 are issued just in time to become operative on April 1st. The new features include a much larger share in the administration of the service by the professional committees. The Allocation Subcommittee now set up is a composite body equally representative of the Insurance and the Panel Committees, with a chairman chosen from the neutral members of the former. This joint subcommittee will have supervision and control over the lists of practitioners. It will frame an allocation scheme to provide for the distribution of insured persons in the area, and for the assignment of persons who have not chosen a practitioner of their own accord. Under this scheme provision must be made for the giving of emergency treatment, and only great tact and skill can make this emergency provision a success. The same subcommittee will have the duty of limiting the lists of practitioners in certain respects, and in the course of its work will presumably have to review the efficiency of practitioners working in difficult areas. The scheme as it stands is largely experimental, and may have to be revised in many areas after a year's experience of its working.

The method of distributing the practitioners' fund in any area is laid down by a distribution scheme, prepared jointly by the Insurance Committees and the Panel Committees, under which the methods of payment of the practitioners are decided, and provision is made for special payments for anæsthetics and emergency treatment, the accounts in every case being submitted for scrutiny to the Panel Committee. Payment in respect of temporary residents now takes the form of a special capitation fee, and provision is made for the payment for drugs and appliances administered by practitioners. Other changes affect the procedure of the Medical Service Subcommittee. Its term of office and method of taking evidence cannot now be decided without consultation with the local Medical and Panel Committee, whose secretary is summoned to the meeting. In one particular the action which may be taken by the Insurance Committee has been extended: on substantiation of complaint against a practitioner his practice may be reviewed with a view to the reduction of his list beyond the limits ruling in the area. A new feature in the procedure of appeal is the proviso that the Minister of Health shall, if so directed by the court hearing the complaint, state in the form of a special case, for the opinion of the court, any question of law arising in the course of the appeal, and may state his decision as to the whole or any part thereof in the form of a special case. This is a wise innovation, and should give a sense of increased security to practitioners.

The terms of service are set out in the first part of the first schedule. They include the new arrangements for the transfer of practices on retirement or death. Over this regulation there has been much bitter controversy, and the Ministry has remained unmoved by the argument that the goodwill of panel practices would be seriously affected thereby. The object of the new regulation is clearly to put the insurance practice on the same basis as the private practice, in negotiating either of which the practitioner can only claim to sell the introduction to a certain group of prospective patients. The safeguards which have been devised will enable the Allocation Subcommittee to protect the interests of panel practitioners generally, and especially the widow and friends in the case of a death vacancy. One of the clauses in this part sets out the obligations of the practitioner with regard to deputies, assistants, and partners, and in the case of a principal and assistant gives the insured person the right to require the personal services of the principal. These are the main points in which the regulations alter the existing arrangements of panel practice. Taken as a whole they are designed to improve the service, to define points which have hitherto been doubtful, and to make clear in the minds of the practitioner the obligation he undertakes in his agreement with the Insurance Committee.

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Anæsthetics in Labour.

THE ideal anæsthetic during the process of labour should keep the patient entirely free from pain, should have no effect in delaying the progress of the labour, and should produce no deleterious effects on either mother or child. Are we at present capable of exercising such an ideal control by any of the anæsthetic agents at our disposal? It is quite true that by a sufficiently liberal use of chloroform we can render the process painless from first to last. We do so, however, only at the cost of a longer labour. If chloroform is so given that no pain at all is felt, it will be given to a degree which will, in the second stage, abolish the voluntary bearing-down efforts of the patient, and will in this way inevitably delay the labour, even if this delay is not further brought about by the action of the anæsthetic in weakening the uterine contractions. Similarly, "twilight sleep," when really effective as a safeguard against pain, inevitably prolongs labour, and in addition there is undoubted risk to the baby. The same arguments apply to the free exhibition of ether in labour. How does the case stand as regards nitrous oxide, the other usually available anæsthetic? At first sight it would appear that this agent, by which an anæsthesia can be produced rapidly, and as transiently as the labour-pain it is intended to assuage, and which will have no toxic effect, should be the ideal for our purpose. As regards the less painful stages of labour indeed we may so regard it. The drawback to nitrous oxide in this connexion is that it will not really defeat the pain at the most painful stage, when the head is passing over the perineum, and thus fails us just at that time when we most require its effective help. Some practitioners, indeed, scarcely use an anæsthetic at all until this critical stage is reached. For them nitrous oxide will have little attraction. Moreover, one of the advantages claimed for it, that it does not diminish the resistance of the patient to infection, is not peculiar to nitrous oxide.

Nitrous oxide is more largely employed in obstetrics in the United States than in this country, being generally employed in the second stage of labour. In the *New York Medical Record* a recent paper by Dr. RAYMOND C. COBURN recommends this anæsthetic in a more general way, preferring it to either ether or chloroform throughout the entire period of parturition, excepting at the final stage, when, he suggests, ether can be added to the nitrous oxide or ether alone can be administered to bring about anæsthesia. His objections to the use of ether or chloroform are much those that we have already set out—that they delay the progress of labour and decrease the patient's powers of resistance, if given in sufficient amounts to relieve the patient of pain, while he rightly points out that it is the fleeting character of the anæsthetic properties of nitrous oxide that make it especially suitable as an analgesic for obstetrical conditions. But Dr. COBURN overlooks the fact, we think, that other anæsthetics, if used only to produce intermittent analgesic states, will have no effect in diminishing the resistance of the patient. If such effect is produced it will only be when the anæsthetic is pushed to the surgical degree of narcosis, in order to defeat pain, during the passage of the head over the perineum. That is to say, if they are harmful as regards the patient's resistance it is only because they are used for an end which nitrous oxide is unable to attain. Actually we doubt whether the amount of weakening of resistance occasioned by the anæsthetic is ever formidable if the latter is skilfully employed.

Chloroform in very dilute vapour can be used during labour over long periods of time without damaging the patient in any way, and without diminishing the uterine contractions. It must be used, however, with skill, with discretion, and with unremitting attention. It must be used in a manner which can hardly be expected if the anæsthetic is simply handed over to a nurse acting more or less under the supervision of the accoucheur. Indeed, one of the chief arguments in favour of the employment of nitrous oxide appears to us to be that this would necessitate the administration of the anæsthetic by a medical man. Certainly, if the conduct of a labour case is to be such as was outlined in our columns recently by Dr. VICTOR BONNEY[1]—that is to say, on strictly surgical lines—then the presence of an anæsthetist will be required more often than has hitherto been the case. Nor can we doubt that this will be all to the benefit of the patient.

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Clean Milk.

CLEAN milk is coming. The dirty byre and the dirty cow have notice to go. The cow must be groomed for more important reasons than the horse. Light, ventilation, drainage, with an ample supply of water, must rule in the dairy farm, and dairy farmers are taking an intelligent view of the situation, thanks to the representations of medical science and the insistent work of public-spirited men, landowners and others. As is well known, milk in the past has shown an appalling bacteriology, the inevitable result of insanitary conditions amongst the herds. If a water-supply should yield a count of bacteria infinitely lower than that of average milk that supply would be condemned. Experience has often shown that it requires no scientific refinements to disclose the gross impurities of milk when mere filtration or sedimentation reveals a deposit of dung. Such filthy disregard of cleanly procedure promises to be a thing of the past, but even reform up to this point has taken a long time to materialise. But the Government and the people are now awake to the errors of the past and the possibilities of the future, and it is to be hoped that the movement now well begun in favour of producing clean, scientifically clean, milk will become universal.

It is interesting to recall that the propaganda as regards certified milk, now obtainable under a system of licences issued by the Ministry of Health, is no new idea. As far back as 1891 a system of certified milk-supply was suggested by Dr. HENRY L. COIT, of Newark, New Jersey. The movement soon gained the support of the medical profession in America, and a Medical Milk Commission was formed which, amongst other things, required that the dairy farmer, under a specific contract, should agree to conduct his business on well-recognised hygienic lines from beginning to end. When the commission was satisfied that these conditions were complied with, including both regular inspection of the farm and herd and chemical and bacteriological control of the milk, the producer was entitled to label the milk "certified milk." In 1909 an Act was approved providing for the incorporation of medical milk commissions and the certification of milk produced under its provision. In 1912 the American Association of Medical Milk Commissions issued and adopted methods and standards for the production and distribution of certified milk. The details of this scheme form the basis of the system now sanctioned by the Ministry of Health in this country. Licences to supply certified milk are issued when the wholesale or retail distributer complies with conditions satisfying a representative of the Ministry of Health or of specially empowered local authorities. The herd from which the milk is obtained must contain no cow or heifer in milk or in calf, or other bovine animal kept in contact with the herd, which has not passed specified tuberculin tests. Further conditions are that—

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[1] THE LANCET, 1919, i., 775.

(1) The milk must be cooled and bottled immediately after production for delivery to the consumer in bottles which have previously been sterilised by steam on the premises where the milk is produced.

(2) Every bottle must be covered with a suitable outer cap overlapping the lip of the bottle, and this cap must bear the name and address of the producer, or of the farm where it is produced, the day of production, and the words "Grade A (Certified) Milk."

(3) The milk on examination at any time before delivery to the consumer must not contain *B. coli* in 1/10 c.cm. (in each of two tubes) or more than 30.000 bacteria per c.cm.

(4) The milk must not be delivered to the consumer as Grade A (Certified) Milk more than two days after the day of production.

It has been amply demonstrated that the conditions imposed are readily workable at the dairy farm, and that the employees appreciate quickly why these hygienic steps are taken: they enter wholeheartedly into the spirit of a policy of clean milk the moment they understand the crudeness and dangers of coarse and antiquated methods of drawing milk from the cow for public consumption.

Hygienic methods of milk production will, of course, inevitably raise the price of milk to the consumer, owing to the extra precautions taken, and the work involved to supply a guaranteed pure and clean article. This advance in price amounts, after all, to the cost of security, or an insurance against risks to health, particularly in the case of young children and invalids. The thing can be done, as evidenced in the admirable model dairy farms of Mr. WILFRED BUCKLEY, Director of Milk Supplies, Ministry of Food, and of Lord ELVEDEN, and Lord ASTOR. This pioneer work is of the utmost importance to the community, and there is distinct hope of the movement spreading. The members of our profession will appreciate this promise of progress, which they have been insistent in demanding for many long years.

THE King Edward VII. Hospital, Cardiff, which recently appealed for £150,000, has already received subscriptions amounting to £110,000. The full sum wanted will, it is hoped, soon be obtained.

UNIVERSITY OF WALES.—A representative deputation from the University of Wales was recently received by the Prime Minister to consider the recommendations of the Royal Commission. Agreement was arrived at as to the lines of a new charter. Under this local authorities may contribute a penny rate to the University, and the Treasury will make an equal contribution. Further, in the case of any private benefaction the Treasury will contribute pound for pound. The exact position of the school of medicine was determined; it is to remain, as at present, an integral part of the University College of South Wales and Monmouthshire situated at Cardiff. The full development of the school has been awaiting decision on these matters, and is expected now to go forward rapidly.

Annotations.

"Ne quid nimis."

VILLAGE SETTLEMENTS FOR THE TUBERCULOUS.

Dr. Addison stated in the House of Commons last week that, while institutional treatment for insured persons suffering from tuberculosis is already being provided in most areas by the public health authorities, by arrangement with the Insurance Committees, imminent legislation will lay this treatment as an actual duty upon the authorities. This will hardly cover the establishment of village settlements for the treatment of tuberculous ex-soldiers, which was one of the pressing recommendations of the Inter-departmental Committee on Tuberculosis. The deputy chairman of this Committee, Sir C. A. Montague Barlow, M.P., recently headed a deputation to Dr. Addison to lay before him the case for the establishment of such settlements. Sanatorium treatment for tuberculosis, even where accompanied by training in a suitable occupation, has, it was stated, been found inadequate as a means of combating the disease. Many patients returning from a sanatorium to their homes and former occupations are unable permanently to earn a living or maintain their health. The interest both of the patients and of the community, so the argument ran, requires that patients should pass through a three-fold course, first of sanatorium treatment, secondly of training, and thirdly of permanent settlement in suitable surroundings. The suggested village settlement is to be a natural development of the sanatorium and training colony. On completion of his course of treatment and training the ex-Service man should take up his permanent residence in a settlement where, still in close touch with the sanatorium, he could have his family with him and work under conditions enabling him to maintain his health. His earnings would require to be supplemented, but the community would be the gainer in the transaction by the prevention of the spread of infection, and the fact that the tuberculous patient would remain a productive worker. An article, in another part of our present issue, by Mr. P. C. Varrier-Jones and Sir G. Sims Woodhead, both of them members of the deputation, sets out the claim of poultry-farming to consideration as a productive industry for consumptives. Dr. Addison, while assuring the deputation of his goodwill, did not conceal the difficulties which were to be overcome. The success of a village settlement depended, he thought, more upon the personality of the man in charge than upon the material provision made. As regards finance, the provision of ten settlements for not less than 200 patients each, as proposed by the Inter-departmental Committee, would, he considered, cost much more than the estimated sum of £1,000,000. He could not consider the case of the ex-soldier apart from that of the civilian population, which had no pensions to supplement their earnings. Dr. Addison concluded by intimating the selection of Dr. Nathan Raw and Mr. Varrier-Jones, in conjunction with a medical officer of the Ministry, to make local investigations with a view to the choice of site for the projected settlements. The choice may be no easy matter, for in addition to favourable climatic conditions, local industries and local markets will both have to be considered. No site chosen can escape criticism from some point of view.

OUTDOOR MEDICAL OFFICERS OF THE MINISTRY OF HEALTH.

WE call attention again to the proposed appointments on the outdoor staff of the Ministry of Health set out in our advertising columns. They refer to 18 medical officers for England and 3 for Wales. A committee has been set up to consider applications for these appointments and to make recommendations to Dr. Addison. This committee includes medical men of high standing from different parts of the country, one of whom is to be its chairman, with a nominee of the Civil Service Commissioners and two representatives of the Ministry of Health. The personnel of the committee will not be announced until after it has made its recommendations. The decision to make the appointments is the result of prolonged thought and negotiation. It embodies the conception of medical referees set forth in the well-known circular (M.25) of the British Medical Association, and the selected men will represent the referee-consultants for whom provision was made in the summer of 1914, when the scheme was held over on account of the war. These whole-time officers are to have functions which are primarily administrative, but at first their duties may be largely clinical, because they are to take the places as official referees of the consultants who have been acting in this capacity under private arrangements with the Approved Societies. They are to act as expert advisers to the authority responsible for the clinical service, and will probably have supervisory powers in the administration of the service. These officers are already referred to in the new Medical Benefit Regulations as the medical officers to whom reports are to be furnished, and with whom consultations will be arranged on any patient in respect of whom a practitioner seeks special advice. The appointments are of the utmost importance to the medical profession as the first step in the further organisation of the Medical Service. We may regard them as forming a link not only with the local health authorities when these should finally be determined, but with the hospital and specialist services which are to be provided in the near future.

ACUTE CHOLECYSTITIS IN CHILDREN AS A COMPLICATION OF TYPHOID FEVER.

THE constant infection of the gall-bladder at some stage of typhoid fever, and the important rôle of the typhoid bacillus in the production of cholecystitis and gall-stones, have been recognised for some years, but the cases of empyema of the gall-bladder or acute cholecystitis that require surgical treatment or prove fatal are few. In children [illegible]ute cholecystitis of any kind is rare. In the [illegible]ns *Hopkins Hospital Bulletin* for January Mr. M. R. Reid and Mr. J. C. Montgomery have reported the following case:—

A girl, aged 8 years, was admitted on Dec. 20th, 1918. Abdominal symptoms had begun a week before after an illness of eight weeks, marked by fever, delirium, headache, and diarrhœa. On admission she was emaciated and complained of pain in the abdomen and a large abdominal mass. The temperature was 98·8° F. and the pulse 100. The abdomen was distended, especially on the right disc, and the venules in the skin were prominent. A large smooth mass, extending from the ribs to the level of the anterior iliac spine on the right side, could be seen and felt. The temperature varied during three days from 99° and 104°. Various diagnoses were suggested—retroperitoneal sarcoma, sarcoma of the liver, abdominal abscess, appendix abscess. An affection of the gall-bladder was discussed, but thought unlikely on account of the huge size of the mass. On Dec. 23rd an operation was performed. A distended gall-bladder containing almost a litre of pus was found. It was removed, and after convalescence the patient rapidly gained weight. Cultures from the gall-bladder yielded the typhoid bacillus in pure culture. A week after the operation the urine also yielded a culture of the typhoid bacillus. The gall-bladder showed typical acute hæmorrhagic cholecystitis with necrotic areas.

Mr. Reid and Mr. Montgomery have been able to find recorded only 17 other cases of typhoid cholecystitis in children, although their search goes back to 1835. In the 18 cases the patients were children under the age of 15, who either died from, or were operated on for, cholecystitis complicating typhoid fever. In 11 cases acute cholecystitis did not develop until eight months after recovery from the disease; in the others the complication occurred during the illness. Eight of the patients died without operation, and all of these cases were reported before 1893, since when 10 cases have been treated surgically, with one death. The authors insist on the importance of distinguishing between gall-bladder complications of typhoid fever that do and do not require surgical treatment. Slight pain and tenderness in the region of the gall-bladder, with slight spasticity of the rectus, are not very unusual in typhoid fever, and the vast majority of the patients recover. But immediate operation is indicated in acute suppurative cholecystitis, as rupture of the gall-bladder may occur. Cholecystectomy appears to be the best treatment.

PSYCHOLOGY AND REALITY.

IN these days psychology is taking on a new aspect in that the science is, as the more academic followers of it may think, demeaning itself by the recognition of utilitarian purposes, and the conception of its practical side is being extended to embrace problems concerning such varied matters as the influence of fatigue, systems of memory-training, advertising, the investigation of crime, and the laying of bricks. Quite an extensive literature is growing up round the application of psychological methods to industry, and for a long period we, being perhaps lacking in the kindness of heart and simple faith which characterise some psychologists, have watched the developments which are taking place with curiosity as to the stage at which the altruistic tone would disappear. That the working man should lend himself to a scheme of examination into his capacity which might mean his being displaced by somebody who could do his job better, or which might provide a logical basis for paying him less is surely unlikely; but hitherto there has been surprisingly little recognition of this fact in the various treatises which deal with the most profitable ways of running the industrial machine. To the *British Journal of Psychology* for March, 1920, Mrs. S. S. Brierley[1] contributes a paper which presents this aspect of the matter. "The attention of psychologists," we are told, "has recently been drawn to the widespread opposition to the introduction of psychological methods into industry, existing among organised labour." Even among educated workers, as Mrs. Brierley shows, there is opposition to the principles of "scientific management," and whether this opposition is merely selfish, or represents a genuine doubt as to the possibility of having "docile, externally controlled workers in industry, who are yet free, intelligent and responsible members of a democracy outside it," the result is much the same It means that the psychologist will have to take broad views of his subject if he is really to serve his day and generation as he aims at doing, and it means also that the purport of psychological experiment concerning labour factors should always be made clear to the public It is the unknown that has the terror The working psychologist could hardly begin better than by studying the valuable paper referred to in this note

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[1] The Present Attitude of Employees to Industrial Psychology.

SEX DISPROPORTION AND ITS REMEDY

THE occurrence of males and females of the human species in almost exactly equal proportions, whether the white, yellow, or black varieties be considered, is a natural phenomenon of considerable significance The disturbance of this normal ratio by such accidents as warfare and emigration is well recognised by sociologists as a factor of serious importance The last annual report of the Friends Association for the Promotion of Social Purity, for example, is constrained to admit the influence of war losses, even while it points out that the disproportion will be considerably less in five years' time There can be no doubt that an excess of women in the population conduces to irregular living, with its attendant diseases amongst those of a low moral standard Others whose lives are regulated by the ideals taught in Christian countries may be expected to suffer psychically through the inevitable conflict between their sense of right and their unsatisfied sex instinct Especially is this true, as has been shown by Professor Jung,[1] in a civilised community where other fundamental instincts like that of self preservation find no outlet for their affective energy There is, however, another way of looking at this question In those countries where a diminishing population is a source of grave anxiety to their most patriotic citizens the loss of thousands of potential fathers is a most serious aspect of the post war sex ratio Dr Paul Carnot[2] estimates that this loss will result in the sterility of two million women in France, and supposing that each of these women might have borne three children, he calculates that the State will lose six million citizens in this generation France, he says, cannot afford such a depletion, and he puts forward certain tentative suggestions for repairing the gap One suggestion —less radical than others—is that facilities should be offered to foreigners enabling them to assume French nationality when they are married to French citizens Many soldiers from all parts of the world have claimed French brides in the last few years, but it is doubtful if any large proportion will wish to establish their home on foreign soil, and Dr Carnot is not satisfied that such a change in French law will suffice He is prepared to go much farther.

> 'No convention, moral or social" he says, "seems to us sufficiently rigid to deprive impoverished France of six million births" The real solution must be sought through some method of making motherhood a remunerative career The State is to replace the absent "head of the family' and to bear all the expenses incidental to the birth and upbringing of a contingent of young subjects A bonus will be paid on ' products of good physical quality '

We remember the horror which was aroused in this country by the unfounded rumour that Russian women had been "nationalised," and we cannot think that Dr Carnot's scheme will readily commend itself either here or in France Fatherhood is nearly as essential as motherhood to the growing child, and we had almost rather consent to polygamy than to sociogamy The real situation seems to be that society must discover some means of maintaining its sex proportion in the natural ratio of one to one If war cannot be eliminated, then women might be enlisted on the same terms as men, and, in the meantime, while so many children are in need of food, a great increase in the birth rate will have its drawbacks

ACUTE SYPHILIS OF THE KIDNEY

ACCORDING to Dr H N Cole,[1] who writes from the Department of Dermatology and Syphilis of the Western Reserve University, Cleveland, acute syphilis of the kidney is a rare disease, and the diagnosis is not justified until exacting conditions are satisfied, such as those laid down by Fournier These were (1) proof of a recent syphilitic infection, (2) appearance of nephritis with syphilis, (3) lack of other sources for nephritis, (4) characteristic features of the nephritis—viz , a rapid onset of the kidney disease, a very high albumin content in the urine, and a tendency to early uræmia Dr Cole reports a case in a man, aged 26 which satisfied all these requirements except that the patient showed no signs of uræmia. Salivation occurred after one week of mercurial inunction, and the albuminuria steadily rose, but after an intravenous injection of 0 2 g arsenobenzol the albuminuria disappeared entirely within two days

A NATIONAL INSTITUTE OF INDUSTRIAL PSYCHOLOGY AND PHYSIOLOGY

IN the current number of *The Times Engineering Supplement* a detailed account is given of the proposed National Institute of Psychology and Physiology applied to Industry and Commerce Among the names of its supporters we note those of Sir Walter M Fletcher, Sir R A Gregory Mr W B Hardy, Dr Leonard Hill, Sir Alfred Keogh, Dr C S Myers, Sir E Cooper Perry, Professor C S Sherrington, and Professor E H Starling The intention of the founders is to establish a National Institute which will investigate the human problems of industry and commerce, occupying a position similar to that held in the domain of physical science by the National Physical Laboratory It will provide training courses and lectures for those interested in the practical applications of psychology and physiology to the problems of industry and commerce It will undertake investigations at factories and offices in relation to any special problems—e g , the conditions necessary to give optimum output the methods of reducing mental and muscular fatigue, the application of tests by which workers can be selected for the occupations for which they are mentally or physically best fitted, and the conditions which tend to the health, comfort, and welfare generally of the worker The Institute will not be established for profit, and a close relation will be maintained with the Industrial Fatigue

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[1] Collected Papers on Analytical Psychology second edition p 370

[2] Paris Medical March 20th 1920 p 1

[1] The American Journal of Syphilis January, 1920

Research Board, but overlapping of effort is to be avoided. A Scientific Committee is being formed consisting of the principal psychologists and physiologists throughout the country interested in such problems, in order to coördinate research work and, so far as possible, to support it by means of grants. We heartily wish success to so impartial and scientific a body of workers in their efforts to deal with important problems, in which a previous medical training is obviously of enormous value. The secretary of the proposed Institute is Mr. G. H. Miles, D.Sc. Lond., and its present offices are at 1–4, Great Tower-street, London, E.C. 3.

DEGREES IN SPECIAL SURGERY AT THE UNIVERSITY OF LONDON.

THE claims of regional surgery for proper recognition have become insistent. The Council of British Ophthalmologists recently expressed the opinion[1] that ophthalmology should be one of the optional subjects in which a candidate can elect to be examined for the degree of Master of Surgery of a university. In a presidential address[2] delivered at the end of last year before the Section of Otology of the Royal Society of Medicine Mr. H. Tilley regretted that London stood almost alone amongst the universities of the United Kingdom in not requiring from its students some certifiable knowledge of diseases of the ear, throat, and nose, and that it offered no inducement to advanced study by allowing candidates to elect these subjects for examination for the highest degrees. That is now to be changed. The Senate of the University of London has sanctioned two new branches in which students may proceed to the degree of M.S.—namely, ophthalmology (Branch III.) and laryngology, otology, and rhinology (Branch IV.). Candidates for admission to the examination in either of these branches must normally have taken the degrees of Bachelor of Medicine and Bachelor of Surgery at the University of London not less than two years previously, and the usual certificates of study and practice in the subjects of examination and service in approved appointments are to be produced. Certificates are accepted only from those schools approved by the University for the purpose, and hospitals desiring their teaching and appointments to be so approved are invited to apply to the academic registrar (South Kensington, London, S.W. 7), from whom the detailed regulations may be obtained. London has thus put itself in line as regards special diplomas with other teaching centres.

Dr. Dawson Williams, editor of the *British Medical Journal*, has been made Commander in the civil division of the Order of the British Empire in recognition of his valuable services to the Royal Army Medical Corps throughout the war.

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[1] THE LANCET, 1919, ii., 1047. [2] THE LANCET, 1919, ii., 1015.

THE WELSH HOSPITAL FUND.—The winding-up of the Welsh Hospital at Netley is to be of benefit to the Welsh National School of Medicine. This hospital was founded and maintained for war purposes by funds raised from Welsh people in Wales and without; during its existence 9763 patients were admitted. The total income amounted to £87,729, and by good management the expenditure for the four and a half years was £78,040. The balance is now to be devoted to establishing and maintaining 18 scholarships of £25 each per annum at the Welsh National School of Medicine, open to "any person who is or has been for seven years prior to the date of election resident in Wales (including Monmouthshire), or a child or grandchild of a person born of parents resident in Wales (including Monmouthshire) at the time of such person's birth."

THE PHYSICAL CENSUS.[1]

II.

IN a previous article the figures were given of certain localised districts, in connexion with Keith's standard. To what extent can these figures be accepted and made the basis for action? Can we, in the first place, safely compare the figures and percentages yielded by different districts and different towns and occupational groups? In other words, can we admit a disparity in the standards adopted by the different medical boards so considerable as to render it impossible to arrive at sound conclusions? To this it must be answered that the findings are based not upon general impressions as to the fitness of the men but upon the results of actual measurements capable of being expressed mathematically (height, weight, age, relationship of girth of chest to height, &c.). And it must be recollected that every endeavour was made to establish uniform procedure both by published instructions, by giving a common training to the heads of the medical boards from all parts of the country, and by periodical conferences regarding moot points. This being the case, the wide divergences found between the statistics of two cities such as Leeds and Sheffield, situated in the area administered by one district commissioner must have an actual basis of fact.

A disturbing influence of greater importance is the variation in the different areas in the number of men engaged in protected occupations who were called out or "combed out" during the last year of the war. Take, for example, the two cities just mentioned. The industries of Leeds are such that in that city there were relatively few men belonging to protected occupations. The natural tendency had been for those who were strong, keen, and physically fit to volunteer in the early years of the war; from which it follows that the men called up in the fourth year represented largely the dregs of a population exhausted by three years of war. The industries of Sheffield, on the other hand, were of the first importance to the nation for the prosecution of the war; they were highly protected. The final combing out therefore elicited the appearance of an undue number of men who were physically fit. No deductions can be drawn regarding the manhood of these two cities without these facts being kept in mind. We cannot neglect noting that the four occupations which stand highest in the report—namely, agriculture, (coal) mining, engineering, and iron and steel-work—were all highly protected. Nevertheless, and making every allowance for these considerations, we cannot satisfy ourselves that all is well.

There is a grave and disturbing factor to which, we think, sufficient attention has not been drawn in the Report. We refer to the relationship between age and physical efficiency. Professor Keith based his indexes upon measurements taken from a select population of undergraduates in the prime of physical life between the ages of 18 and 25, the majority between 18 and 20. Unfortunately, we possess no adequate body of data by which to establish when the average healthy man is at his physical prime, or by which we can plot out the curve of the age-efficiency relationship. But this we know, as the result of practical experience, and notably from the findings of the boards determining admission to the Air Force, that already at the age of 24 there is to be noted in general a decline of physical fitness. The Report, indeed, yields figures indicating that the maximum is at 18, with relatively rapid descent after this age. Thus Liverpool No. 1 Medical Board reports (p. 57):—

Grading of 25,696 Recruits (Nov. 1st, 1917–Oct. 31st, 1918).

Grade I. Men.

Year.	Number passed.	Percentage.	Year.	Number passed.	Percentage.
18	2146	49·5	26–31	747	27·7
18–19	2354	48·9	32–37	617	20·9
20–25	823	35·2	38–42	277	8·9

It is obvious, therefore, that in a population of recruits which in respect to age is mixed, as was that presenting itself for examination in 1917–18 the index of fitness must vary according to the ages of the individuals forming the various groups, and that the inclusion of even a few men aged between 40 and 50 must materially lower the average The Liverpool district appears to have taken this variable into fullest account, although in other parts of the North Western District, as at Stockport and Salford, valuable data are given bearing upon this subject, and (pp 78–82) the West Midland region gives confirmatory graphs showing the progressive decline in Grade I men from 18 years of age onwards The decline is even more rapid in agricultural areas, like Hereford and Leamington, than it is in industrial areas such as Birmingham and Coventry

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[1] THE LANCET, March 6th, p. 557, and March 27th, p. 726.

But making these admissions, the fact remains that, selecting what from a physical standpoint is evidently the best group, in a painfully large number of districts that group is below par Thus in Liverpool the 18 year old group is 49 5, in Birmingham, 36 0 Burslem, 27 0 Dudley, 21 9, compared with the expected 70 of Keith's index, the 75 per cent and 63 per cent respectively of those under 18 and between 18 and 21 of the Edinburgh district, the 80 62 per cent of Scottish miners from 18 to 21 years of age, and 86 18 per cent Grade I among young Scottish nonworkers Even, therefore, at the most favourable life period there is in many districts a deplorable lowering of the efficiency of British manhood, a lowering so great that it is a national need for it to be arrested What are the main causes can be deduced from a study of the other end of the tables given—namely, of the rejected Grade IV men Regarding these, in district after district we encounter the same story—poor physique, tuberculosis, heart disease Wholly preventable conditions, malnutrition, and the chronic and subacute infections are, in the main, responsible for the sapping of the vitality of British young manhood Three fifths of the rejections are due to these causes And when we inquire further as to the underlying cause it appears evident that the lowest number of Grade I men and the highest percentage of rejections are associated with overcrowding, back to back houses and lack of ventilation, female labour with its concomitant neglect of the growing child, and poor feeding of the population in general The food is there, but it is not prepared aright, nor is there adequate selection of the necessary constituents We must add to these the widespread lack of exercise and physical training of the growing child and the youth, for 90 per cent of our population has no proper recreative exercise

Attempt has not been made here to do more than explain certain bearings of a report which should be in the hands of every public official however remotely connected with the health of the nation, and also in the possession of every medical man The significance of the statements, records, and diagrams can only be realised by personal study, but an idea of the valuable work which has been discharged is furnished by the first table in the report It has been universally quoted, but its message has not been grasped From this it will be seen that the actual number of medical examinations made amounted to 2,425,184, the figure including re examinations, so that the same individual may figure several times in the total This figure, when divided in accordance with the grades, shows that 36 per cent were placed in Grade I, 64 per cent of the population of military age failing to attain the full normal standard of health and strength necessary for enduring the physical exertion suitable to age 22 to 23 per cent, or approximately 1 in 5, were placed in Grade II, and were thus estimated as being capable only of undergoing physical exertion of a limited kind 31 to 32 per cent, while presenting marked physical disabilities or evidence of past disease unfitting them for the higher grades, were considered useful material in an army made up of every sample of the population, for occupations such as tailoring and bootmaking, as well as clerical assistance, while rather more than 10 per cent were totally rejected From the medical point of view the large percentage of men placed in Grade III is alike the most ominous and the most hopeful, ominous because the figure is a representation of our want of appreciation of the past of many of the problems of public health, but optimistic in that here lies that great class whose physical condition can be bettered by the intelligent labours of a Ministry of Health The opportunity should be seized while it lies ready to hand, to examine carefully the material which events of recent years have placed within our reach, with the assurance that though we may not possibly achieve the whole truth we can yet find much that will throw an illuminating light on our greatest national asset—the health of the population

IRELAND

(FROM OUR OWN CORRESPONDENTS)

Medical Practice under "The Curfew"

"The Curfew —that is to say, the prohibition of being abroad between the hours of 12 midnight and 5 in the morning—has now been in force in Dublin and the neighbourhood for some five or six weeks, and it is possible to consider the effect it has had on the conditions of medical practice It is to be noted that the authorities promised to grant permits to medical practitioners and nurses and other persons having legitimate business abroad during the prohibited hours, and so far I have not heard of any refusal to proper applications It was anticipated that even with permits it would not be very safe to be out of doors in the small hours One remembered the days after Easter week in 1916 when—all others being forbidden to go out after dark—it was permitted to doctors and nurses to go about on their lawful occasions But the inquiry as to the personality of the wayfarer was as likely to follow as to precede a rifle shot in his direction, and one distinguished clergyman was killed in this way through having mistaken the time by a few minutes When the present restrictions were imposed a large body of public servants —the telegraph messengers—were so fearful of the dangers of the night that they declined to perform their duties, and the Postmaster General admitted in the House of Commons that their reluctance was "not unreasonable' As a matter of fact, the authorities here, as far as my information goes, have carried out their duties of interrogating wayfarers with tact and courtesy, and no mishap has yet occurred It is true that one or two doctors who neglected to provide themselves with permits have had to spend some hours in a police station but they have only themselves to blame On the other hand, certain inconveniences to the sick have necessarily resulted In case of sudden illness unless a telephone is available—and in the present condition of the telephone service it sometimes takes more than five hours to get a message through—there is no way of summoning a doctor An observant journalist who walks a mile home each morning tells me that in sporting phrase, "the chances are even" of being challenged, and anyone found without a permit is certain to be brought to the police station and delayed until full inquiries have been made Women making their way to maternity hospitals or requiring attendance at their homes are in special difficulty A messenger may be unable to reach his destination, and in one case at least a woman in labour was turned back when within a stone's throw of the hospital The sentry, in the stolid performance of his duty, held that "labour' must cease between 12 and 5'

In spite of the disturbed condition in country districts there does not seem to have been much interference with medical practice In one case some weeks ago in county Clare a medical man arriving in his car on the scene where a "battle had just taken place between a police patrol and an attacking party was fired on by the police under the idea that the car was coming up in support of the enemy He was wounded in the forearm, but not seriously On the whole, medical men do not appear to suffer more than other peaceful citizens from the disturbed conditions

The late Professor Joseph Patrick Pye

A distinguished teacher and an impressive personality has passed away in Professor Pye professor of anatomy and physiology in University College, Galway. His whole life was associated with the College in Galway. He studied medicine there as a student in the "sixties." Having qualified as L.R.C.S. of Edinburgh in 1870 and taken the medical degree of the old Queen's University in 1871, he was, after some work in London and Paris, appointed professor of Materia Medica in Galway in 1873. In 1877, when Professor Cleland, on appointment to Glasgow, resigned the Chair of Anatomy and Physiology in Galway, Pye succeeded him and filled the two chairs for the 43 years up to his death at the age of 71. His many friends often regretted that he attempted the double duty for so long a period, for he was prevented by his full routine of duty from securing wider recognition as a man of science, but in Galway his originality and insight made him a successful and inspiring teacher. He was held in much affection by his students.

Puerperal Fever in Belfast.

An inquiry has been held in the City Hall, Belfast, by a medical inspector of the Local Government Board, requisitioned by reason of the number of notifications of puerperal fever in the months of December, 1919, and January and February, 1920. It appeared that 21 notifications had been received by the public health department. The public health committee asked the Local Government Board to investigate the facts. Four of the cases were, it was stated, in hospital and three dead. The medical officer of health said four cases were attended by one nurse and notification by her was prompt; she had attended other cases in the same period where no disease had supervened, and he was satisfied there had been no neglect. He believed the infection in the four cases went from one to the other, but the nurse would have no knowledge of the existence of the fever. He said the abnormal system of living during and since the war might have affected people's nerves, so that they had not the same resisting powers as formerly. In the fatal cases there was no overcrowding. He believed the nurse with the four cases did everything she could, and was in no way to blame. Evidence was then taken from doctors who had been in attendance on the cases under investigation. One said it was unfair to private practitioners that nurses with doubtful qualifications should go and make examinations and tell the people it was unnecessary to call in a doctor. He was satisfied that lots of cases of puerperal fever could be avoided if the cases were attended properly. Another doctor said the incidence of influenza had, in his opinion, a great deal to do with these cases of puerperal fever; while another—a former house surgeon in the maternity hospital—said his experience for two years in that institution was that the great majority of cases were due to treatment by "handy women." The medical officer of health, on being re-examined, said he knew some midwives were illiterate and got friends to fill up the notification forms. He had one case in mind where the taking of the temperature was guesswork. The town solicitor said that under the present Act midwives were appointed by the Central Midwives Board, Dublin, and that suggestions as to qualifications by the Corporation had been rejected. The lady inspector superintendent of midwives in the Belfast Public Health Department said, with one exception, all the midwives had carried out her instructions. In connexion with handy women certified under the Corporation Act, she had in a number of instances instructed them in the recording of temperatures and pulse, and the taking of the latter was the greater difficulty. The midwives concerned gave evidence, when one said she could not get a doctor to come to a case, and she could not order removal to hospital, as without a doctor's signature the ambulance would not appear. In another case, until the doctor was paid, he would not come. She said that unless they were engaged to attend doctors would not come. Another midwife, who worked among the poor, said doctors, unless paid their fee, would not come. The inspector said the nurse who had the four cases of puerperal fever had exercised scrupulous care. At the conclusion of the evidence the Belfast City town solicitor said the evidence showed that in almost every case there had been laxity in regard to notification of birth (which should be given within 36 hours), and notification of puerperal fever should also be given at once. With reference to the capacity, knowledge, and training of midwives, "it was," he said, "a dismal thing for the country that the law was passed abrogating the Corporation (viz., Belfast) Act of 1911, and opening the door again to a considerable influx of practically untrained women. Fortunately, that door was now closed as the two years since the Act of 1918 had elapsed, and women of that untrained type could not now be admitted." He said that the nurse who attended the four puerperal cases was the only one who had given notification with promptitude.

Ulster Medical Society.

A meeting of this society was held on March 25th in the Medical Institute, Belfast, Mr. Andrew Fullerton, the President, being in the chair, when Dr. N. C. Graham read a paper on a Typhoid Epidemic in a Sanatorium. The epidemic began on August 17th, 1919, in the Forster Green Consumption Hospital, Belfast, and, during its progress, 21 persons (patients, nurses, and maids) were affected. At first no clue to its causation could be found either in water, milk, or carriers. Later a phthisical patient, who was discharged with high temperature as he was thought to be dying, recovered, and it is believed that he may have had typhoid and that others may have been infected. After the epidemic was over a maid was found with typhoid bacilli in her urine, and she may, perhaps, have been the "carrier." Dr. Graham quoted details of a similar outbreak in a tuberculosis sanatorium in America, and in both places, while Widal's reaction was definite, the typhoid symptoms were not marked among those affected. Dr. G. M. Irvine read a paper on Medical Art in Relation to Social Progress.

March 29th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The New Rector of Paris University.

THE death of Vice-Rector Lucien Poincaré has been made the occasion of an administrative innovation, for Professor Appell, ex-Dean of the Faculté des Sciences, has been nominated as his successor. For nearly 80 years the University of Paris was the only one in France without a titular rector at its head. In theory the rector was the Minister of Public Instruction, and the real head of the University held only the official title of vice-rector, as did L. Poincaré, and Gréard and Liard before him. In the documents which he signed he was only called rector by courtesy. This fiction has now only an historical interest, and the Minister has renounced his honorary title in making M. Appell, who is a celebrated mathematician and a member of the Institute, Rector in name as well as deed.

Gratuitous Treatment of War Victims.

The law of March 31st, 1919, now coming into force in France, gives to all ex-soldiers suffering from wounds or disease due to the war the right to receive medical, surgical, and drug treatment for the remainder of their lives at the expense of the State. In this fit of generosity the State has assumed an enormous burden. Gratuities have an irresistible attraction for the public, and there will be a tendency to refer to their military service as the cause of any malady from which soldiers suffered in the course of five years of war. But in France ex-soldiers represent 80 per cent. of the male population between 20 and 50 years of age. Provisions in the law aim at providing guarantees against such abuses as can be easily foreseen. Men, even though invalided and pensioned by an official inquiry, will have to prove that the disease from which they suffer is a direct consequence of the malady or injury which gave rise to invaliding. At the express demand of the medical profession, free choice of doctor and pharmacist is definitely specified, the State paying the professional charges on a tariff to be fixed later by agreement with the medical societies. Since in view of the state of French public finance the tariff will be modest, it remains to be determined whether the doctors are obliged to accept the care of such patients Well known consultants, who at present command large fees, will be threatened with the invasion of their consulting rooms by a populace happy to make use gratuitously of their right to free choice of doctor, a right assured to them by law It is true that the doctor will have the power to decide which cases should be treated in hospital, but even so he cannot be obliged to accept all the patients who claim his care If many doctors refuse—which they certainly will do when they see the abuse of the benefits of the law by well to do clients—the statutory free choice will become illusory This difficulty, clear enough to the medical profession, does not seem to have been foreseen by the legal mind The administrative dispositions will be simple enough The names of all the men who come into the legal category will be inscribed on a special list at the town hall of their place of residence They will receive a card recording the diseases or injuries contracted during military service, with a series of leaves attached, each consisting of two parts, one for the doctor and one for the pharmacist The doctor to whom the patient applies will have to certify if he is suffering in consequence of the infirmity inscribed on the card Should he conclude in the affirmative he tears off the sheet, handing to the patient the part reserved for the prescription for him to take to the pharmacist The doctor keeps another part of the leaf called a "bulletin de visite" At the end of the quarter the doctor and pharmacist send to the prefect of the department the whole of the used leaves which constitute the vouchers for their payment At the patient's first visit the doctor writes at once to the prefect informing him that the disease is of a nature to secure the benefit of the law If he considers otherwise he simply refuses the card presented by the patient, which is as much as to say that he has no legal right to care or medicine The law does not say if the preliminary consultation is to be paid for when the conclusion is negative It will in any case involve a careful examination on the part of the doctor, and if this examination is to be paid for by the State abuses will arise on the part of less conscientious patients These are some of the minor difficulties to be foreseen in the application of the law

The Campaign against School Epidemics

M Azoulay recently complained to the Academy of Medicine that measures to ensure school hygiene are rendered difficult or nugatory by timidity and ignorance on the part of municipalities and faulty interpretation of the measures proposed He proposes the creation at the onset of any epidemic of a class of infected pupils directed by teachers and district nurses The first requisite is to remove all powers in regard to health and sanitation from the authority of the local mayors who may be incompetent and too sensitive to electoral interests

March 27th

VIENNA

(FROM OUR OWN CORRESPONDENT)

A Leaflet on Influenza

THE frequency of attacks of the new "grippe" or influenza, has caused much uneasiness amongst the population of Vienna, not a little promoted by alarming notices in the daily press as to the high rate of mortality and the serious complications, like meningitis and pneumonia The Vienna Medical Society, as the recognised authority on medical matters in this city, appointed a committee to draw up an instructive leaflet for the general public The following information has so far been published by the committee The present wave of the grippe has been prevalent for about six weeks, but neither in size nor in severity does it equal the epidemic of 1918 Hæmorrhagic cases are almost completely absent the pneumonic complications are mostly very mild Neuritic troubles, as well as protracted feverish conditions, are often noted and initial rashes resembling scarlet fever are occasionally seen The comparatively frequent cases of encephalitis myoclonica of doubtful prognosis seem to be traceable to this epidemic Children under 12 years are subject to the infection but mostly to a mild degree Even cases with a severe onset soon improve Affections of the middle ear are not very frequent, but often affections of the conjunctivæ are noted with marked inflammatory symptoms

Treatment of Ozæna by Transplantation of the Parotid Duct

At a recent meeting of the same society, Professor Meyer reported the results of a series of cases of ozæna, treated on the principles of Wittmaack This method is based on the fact that the symptom most distressing to these patients the odour, can be palliated by constant washing out of the nose Wittmaack had the ingenious idea of producing a continuous irrigation of the nose by implanting the parotid duct into the nasal cavity, thus causing the saliva to keep the nasal mucosa moist This produced a sort of liquefaction of the nasal discharge, with avoidance of crusts and absence of the peculiar odour The operation is very simple An opening is made in the canine fossa similar to that for operation on a maxillary empyema—under local anæsthesia—just opposite the duct The duct is then freed for about half an inch, with sufficient margin of mucous membrane to permit of a flap, and implanted into the maxillary antrum with a few stitches It quickly resumes its function, and saliva appears in the nose especially at meals In one of the cases the profuse flow caused more inconvenience than the ozæna before operation, and this patient had the operation "undone" because of the profuse salivation the previous condition was easily restored But the majority of the other five patients greatly benefited The time that has elapsed since the introduction of the operation is not long enough to say what permanent benefits will be derived from it

The Vacant Gynæcologic Appointments in Vienna

By the unexpected death of Professor Ernest Wertheim, chief of the First Women's Clinic in Vienna University, an unusual condition has been brought about Since the death of Professor Schauta, about one and a half years ago, his clinic had not been in charge of a clinical teacher, but was carried on temporarily by his last assistant Now Vienna is without clinical teaching in obstetrics and gynæcology To fill the vacancies is most urgent Proper professors are hard to find The sort of man required is a scientist of high standing, and at the same time a good teacher while he will have to be very modest in his demands, for the Government seem not to have enough funds to offer satisfactory remuneration It has been planned for some time to unite both clinics in one institute but to this idea all students are opposed As present conditions seem to preclude the appointment of an eminent teacher from Germany, probably one of the leading gynæcologists of Vienna like Halban or Peham will be asked to accept the office

Professor Wertheim

Professor Wertheim's death came as a shock to his numerous friends and many beyond our frontiers will learn with regret of his passing His operation for cancer of the uterus had gained him a wide fame Wertheim was a keen and bold operator, as well as a critical and cautious scientist, whose researches were distinguished by logic and method He was the first to prove that the gonococcus was responsible for the majority of infections of the female pelvic organs, and to demonstrate its cultivation by adding human serum to the agar medium His researches on the anatomy and histology of the pelvic organs and their lymphatics made possible the exact removal of cancerous deposit and students from both hemispheres flocked to his clinic to follow his methods At the early age of 56 years he fell victim to the wave of influenza which rapidly ove whelmed his weakened heart

Homage to William Osler

At a recent meeting of the Medical Society of Vi Professor K F Wenckebach delivered a funeral o on Sir William Osler whose death roused worl feeling among the medical fraternity. We in Vienna felt his decease the more keenly, as it was due to his active intervention that our hospitals, some six months ago, received a generous gift of remedies and food from England at a time when conditions were alarming. It will be remembered that Professor Wenckebach visited London at that time and was generously received there.

March 11th.

THE INCOME-TAX REPORT.

BY JOHN BURNS, W.S., EDINBURGH.

EVEN in the midst of the press of work which at present affects all the professions, most of us can spare time enough to get a general notion of how our particular cases are likely to be affected by the changes recommended in the matter of income-tax and super-tax by the Royal Commission which has been inquiring into that subject. It may well be, however, that a practising physician or surgeon would have neither the time nor the inclination to plough his way through the voluminous pages of the report in order to find out the parts which have a bearing on his affairs, and indeed it may be possible to present the position in plainer form than individual reading will attain to.

On the bulk of the medical profession the changes recommended will not impose any materially heavier burden; they may, on the contrary, in many cases be advantageous, as figures later suggest. It is convenient to assume that the recommendations will be accepted and receive legislative effect, although that depends on the Chancellor and the House of Commons.

The Assessment Basis.

Instead of an average of three years the basis is to be the ascertained income of the last year earned in practice. There may be hard cases in the act of transition from the one basis to the other. Some provision is to be made to meet such cases. It may take the form of a rigid rule, or it may possibly issue as a discretion to some official body to give relief when the circumstances seem to justify it. In passing it may be said that there is just a little too much savour of bureaucracy about the Commissioners' recommendations. In any case, this transition point is a technical matter which will in many cases require careful watching. The "preceding year," of course, means the last year for which the doctor has, in fact, made up his accounts. Thus, assuming that the new rule operates for the tax year April, 1920, to April, 1921, the assessment for that year would be upon the ascertained professional results for the doctor's year to, say, Dec. 31st, 1919, if that is the date on which he has been in the habit of making up accounts. There is no suggestion that the option of taking either the earnings basis or the cash basis is to be interfered with.

Remuneration from official appointments will continue to be assessed on the basis of its amount in the actual year of assessment, and neither on an average nor on last year's figure. In connexion with such appointments it is important to note that remuneration in kind is to be brought into account at its fair cash value. That is because, though it cannot in fact be turned into cash, it has in most cases a substantial cash value to the receiver; yet up to date it has escaped. The reference is to such matters as free official residences, free board, attendance, &c.

It may also be well to state that, to reach total income, the unearned income (henceforth to be known as "investment income") is brought in at its amount in the year of assessment. There is an exception in the case of interest and dividends (e.g., on war loans) received without deduction of tax, which is taken at last year's figure, and there is no indication of change there. This refers to the doctor's own investment income and also his wife's, for the Commissioners do not accede to the argument that, for income-tax purposes, husband and wife ought to be reckoned as two.

Earned income relief.—At present this relief is given in the form of a lower rate of tax on the earned income, so long as the total income does not exceed £2500. This is now to be entirely changed. There is to be no limit of income which shall exclude the wealthy man from this relief. But the relief itself is not to extend beyond £2000 of earned income, no matter how large the earned income may be. The form of relief is by subtracting one-tenth from the earned income and bringing into the taxation account only the remaining nine-tenths. Thus a professional income of £500 will count as £450, £1000 as £900, £2000 as £1800, £3000 as £2800. The amount that escapes can never exceed £200 of income.

Abatements.—Here we refer to what up to now have been known as the abatements for small incomes, the last being £70 on incomes exceeding £600 but not exceeding £700. All this is to be changed. The relief is now to be known as the "personal" or "marriage" allowances. The amounts are £135 to an unmarried person, including widows and widowers, and £225 to married couples living together. These allowances are given without any limit of income. The wife allowance disappears, for it is merged in the marriage allowance.

Children.—The conditions as to age remain as at present. The amounts are £40 (as at present) for No. 1, and £30 (instead of the present £25) for each other. No limit of income. The allowance is not to be given in respect of any child who has an income as large as the allowance. It is assumed that it will probably be found that, if a first child has an income of £15 an allowance of £25 could be obtained by the father.

Dependent relatives remain as at present, except that the income limit is abolished, and that the allowance may be obtained for a widowed mother, though neither old nor infirm.

Two things may be noted about all the allowances mentioned. There being no limit of income every doctor must be affected by all, or at least by one of them. They operate as actual deductions from income. It is only after they are taken off that what is now to be known as the "taxable income" is ascertained.

Graduation of tax.—This is retained, but in a much less complicated form than at present. Having found the taxable income, it is taxed as follows: (1) the first £225 at one-half of the standard rate of income-tax, and (2) the balance at the standard rate. At present that would mean 3*s.* on £225 and 6*s.* on the balance. Again, this holds no matter how large the total income may be.

Life assurance.—This becomes rather involved. Policies effected since June, 1916, rank for only one-half of the standard rate of tax, which is the present rule. Policies taken out before that date rank for the full standard rate of tax if the income exceeds £2000; for three-fourths of the standard rate if the income exceeds £1000 but does not exceed £2000; and for one-half of the standard rate if the income does not exceed £1000.

Illustrations.

No. 1.—An unmarried man.

Professional income on last year's basis	£700
No other income. Deduct one-tenth..	70
	630
Personal allowance...	135
Taxable income...	£495

Taxed at 3*s.* on £225 and at 6*s.* on £270.

No. 2.—A married man with wife and four children counting for the children abatement; also one dependent relative:—

Professional earnings (practice)		£3000
Deduct the maximum earned income relief... ...		200
		2800
His investment income		500
His wife's ,, ,, ...		500
		£3800
Deduct:—		
Marriage allowance	£225	
Children, £40, £30, £30, £30	130	
Dependent relative	25	= 380
Taxable income...		£3420

Taxed at 3*s.* on £225 and at 6*s.* on £3195. But if he pays premiums of £200 on pre-1916 policies and of £300 on post-1916 policies, he will obtain relief at 6*s.* per £ on the £200 and at 3*s.* per £ on the £300.

Depreciation —This will now be obtainable as a deduction in respect of a car But it will be for consideration whether it should be claimed, or whether it may not be better to continue to charge renewals as at present In either case all repairs, and, of course, the running expenses, are allowable As between depreciation or renewals either may be obtained, but not both

Residence —The present rule is that when the same premises are used as dwelling house and for practice not more than two thirds of the Schedule A assessment is an allowable expense It is suggested that there be, in future, power in a proper case to allow more than two thirds What will be regarded as a special case remains to be seen There have been some very hard cases in the line of boarding houses, where the trader and family did not occupy more than a twentieth of the whole But the doctor s grievance, as put before the Commission, rather was that, if it were not for compelling professional necessity, he would reside in a much less expensive neighbourhood and in a much less pretentious residence The suggestion, therefore, was *that in such a case, even though the professional* part of the house might be much *less* than two thirds, it would be reasonable to allow *more* than that fraction as a professional expense The point should not be forgotten in the class of case to which it applies

Professional books —This is a matter which has been referred to in these columns previously The practice at present varies It ought now to be cleared up and pressed in Parliament if necessary A sufficient reason is that the Commissioners recommend an allowance of £20 to schoolmasters for books, assuming that they spend so much If a schoolmaster requires £20, would £50 be too much for a doctor?

Partnerships —Each partner may in future be separately assessed this is to secure privacy but there will be a right on the part of the Crown to claim against the partnership if any partner does not pay

Casual gains —It is recommended that ordinary Stock Exchange gains should be reckoned as taxable income This is totally novel But losses would not be deductions against ordinary income

Super tax —The changes are not very great It is to begin absolutely at any income over £2000 The rates are somewhat increased The scale is carried up to £20,000 Bonus shares are to be roped in

Specimen figures of tax —The following tables include super tax where payable When children are referred to what are meant are such children as count for the children allowance To save space it is assumed that the income is all earned, but even if not the difference is not very great

Unmarried

Income	Present tax	Proposed tax	Income	Present tax	Proposed tax
£	£	£	£	£	£
500	45	61	2000	450	466
700	94	115	3000	962	853
1000	150	196	4000	1362	1278
1500	281	331			

Married Couple without Children

Income	Present tax	Proposed tax
£	£	£
500	39	34
700	87	88
1000	150	169
1500	281	304
2000	450	439
3000	962	826
4000	1362	1251

Married Couple with Three Children

Income	Present tax	Proposed tax
£	£	£
500	29	20
700	73	61
1000	144	142
1500	281	277
2000	450	412
3000	962	799
4000	1362	1224

THE LATE MR H T. SYLVESTER, V C —Mr Henry Thomas Sylvester, who died recently at Paignton, Devon, took his L R C S Edin in 1853, and was for 30 years in the employ of the East India Company as surgeon It was whilst serving with the Royal Welsh Fusiliers that he won the V C for rescuing a brother officer under heavy fire being also mentioned for "devoted goodness to the wounded under his charge" He was a Knight of the Legion of Honour, and also was awarded the Turkish medal, medal and clasp for Sebastopol, and also the medal with clasp for *Lucknow* After his retirement from the army Mr Sylvester practised in London, retiring later to Paignton

The Services.

ARMY MEDICAL SERVICE

Lieut Col J F Martin relinquishes the temporary appointment of Deputy Assistant Director General

Major and Bt Lieut Col H V Bagshawe to be a Deputy Assistant Director General

ROYAL ARMY MEDICAL CORPS

Capt E W Vaughan to be temporary Major whilst specially employed

The undermentioned relinquish the acting rank of Major Capts O B Pratt, J R N Warburton, Temp Capts J Bamforth, G F Bird

Capt T J Kelly resigns his commission

T W Smart to be temporary Lieutenant

Officers relinquishing their commissions —Temp Hon Lieut Col W R Dawson (retains the honorary rank of Lieutenant Colonel), Temp Majors (retaining the rank of Major) C V Mackay, H D Macphail, Temp Capt A J Blake (granted the rank of Lieutenant Colonel), Temp Capt (acting Major) N Dunn (granted the rank of Major), Temp Capts (retaining the rank of Captain) J M Morris, W G Riley, J P Crawford P L Hope, F D Johnson J N G W McMorris, E Hesterlow, W J Lascelles, F W Watkyn Thomas

SPECIAL RESERVE OF OFFICERS

Capt J E E de Robillard resigns his commission

TERRITORIAL FORCE

Capt (acting Major) A C Watkin relinquishes the acting rank of Major on ceasing to be employed

Medical Branch —The undermentioned are transferred to the unemployed list Capt (acting Major) H Gardiner Hill Capt (acting Lieut Col) W Darling

VITAL STATISTICS

VITAL STATISTICS OF LONDON DURING THE YEAR 1919

IN the accompanying table statistics of sickness and mortality in the City of London and in each of the metropolitan boroughs are summarised for the 53 weeks of the year 1919 With regard to the notified cases of infectious diseases, it appears that the number of persons reported to be suffering from one or other of the ten diseases specified in the table was equal to a rate of 5 9 per 1000 of the population, estimated at 4,358 309 persons, in the three preceding years the rates were 5 1, 4 2, and 4 4 per 1000 respectively Among the various boroughs the rates last year ranged from 2 9 in Hampstead, 3 0 in the City of London 3 7 in the City of Westminster, 4 0 in Hammersmith, and 4 1 in Kensington, to 6 9 in Hackney, 7 8 in Deptford, 8 4 in Greenwich, 8 5 in Southwark, 8 9 in Stepney, and 10 1 in Bethnal Green Twenty six cases of small pox were notified last year, against 11, 1, 0, and 35 in the four preceding years, of these, 10 belonged to St Pancras, 4 to Woolwich, 3 to Battersea, 2 to Islington, and 2 to the Port of London The prevalence of scarlet fever showed a considerable increase last year, 12,931 cases were notified, against 6110 and 6811 in the two preceding years Among the metropolitan boroughs the greatest proportional prevalence of this disease was recorded in Stepney, Southwark, Lambeth, Deptford, Greenwich, and Lewisham The Metropolitan Asylums Hospitals contained 2841 scarlet fever patients at the end of last year, against 1246 and 1087 at the end of the two preceding years, 11,750 new cases were admitted during the year, against 6056 and 6676 in the two preceding years Diphtheria was somewhat more prevalent than in the preceding year, 9479 cases were notified, against 8300 and 8174 in the two preceding years This disease was proportionally most prevalent in Hackney, Bethnal Green, Stepney, Southwark Greenwich, and Woolwich The number of diphtheria patients remaining under treatment at the end of last year in the Metropolitan Asylums Hospitals was 1845 against 1656 and 1039 at the end of the two preceding years, the number of new cases admitted during the year was 9053, against 8554 and 8256 in the two preceding years The prevalence of enteric fever was slightly less than in the preceding year, but was considerably below other recent years, 344 cases being notified, against 779, 647, 463, 452, and 358 in the five preceding years The greatest proportional prevalence of this disease was recorded in Kensington, Chelsea, Stepney, Poplar, Greenwich, and Woolwich The number of enteric fever patients admitted into the Metropolitan Asylums Hospitals during the year was 215, against 470 446 324, 271 and 242 in the five preceding years, 25 cases

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING THE YEAR 1919.

(*Specially compiled for* THE LANCET.)

Cities and Boroughs.	Estimated civil population, 1919.	Notified Cases of Infectious Disease.												Deaths from Principal Infectious Diseases.									Deaths from all causes.	Death-rate per 1000 living.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.		
LONDON	4,358,309	26	12,931	9479	1	344	6	313	2829	197	93	26,219	5·9	5	359	145	777	220	59	1372	2937	0·7	59,255	13·4
West Districts:																								
Paddington	143,938	—	261	259	—	10	—	15	77	7	5	634	4·3	—	11	4	17	3	—	52	87	0·6	1896	13·0
Kensington	157,886	—	261	274	—	19	—	12	75	7	2	650	4·1	—	14	2	17	4	—	82	119	0·7	2389	14·9
Hammersmith ...	130,981	1	186	237	—	9	—	6	78	6	6	529	4·0	—	9	2	21	9	1	65	107	0·8	1674	12·6
Fulham	152,543	—	369	335	—	6	1	35	74	9	2	831	5·4	—	13	5	31	4	2	42	97	0·6	1871	12·1
Chelsea	60,573	—	156	76	—	8	—	3	19	3	3	268	4·4	—	8	4	8	4	—	13	37	0·6	897	14·6
CityofWestminst'r	127,533	—	248	136	—	12	—	4	76	4	1	481	3·7	—	6	3	15	2	2	23	51	0·4	1808	13·9
North Districts:																								
St. Marylebone ...	97,953	—	198	156	—	4	—	6	57	3	5	429	4·3	—	18	3	10	2	2	30	65	0·7	1517	15·2
Hampstead	88,012	—	126	87	—	8	—	2	36	1	3	263	2·9	—	5	2	7	—	—	17	31	0·3	1004	11·2
St. Pancras	219,434	10	587	354	—	9	—	12	145	10	5	1132	5·1	1	15	5	23	7	2	53	106	0·5	2944	13·2
Islington	323,034	2	1084	654	—	16	1	29	212	16	3	2017	6·1	1	13	12	50	18	3	86	183	0·6	4619	14·1
Stoke Newington...	50,954	—	130	118	—	2	—	3	41	2	—	296	5·7	—	2	2	14	4	—	9	31	0·6	657	12·7
Hackney	216,736	—	653	700	—	23	2	17	111	6	6	1518	6·9	—	6	8	91	19	3	66	193	0·9	2860	13·0
Central Districts:																								
Holborn	38,156	—	56	88	—	2	1	—	25	2	—	174	4·5	—	2	—	6	—	1	5	14	0·4	630	16·2
Finsbury	75,291	—	264	143	—	6	—	6	50	5	1	475	6·2	—	9	—	9	1	—	30	49	0·6	1165	15·2
City of London ...	13,893	—	15	23	—	1	—	—	2	—	1	42	3·0	—	—	—	2	1	—	1	4	0·3	198	14·0
East Districts:																								
Shoreditch	98,134	—	296	260	—	8	—	3	82	4	—	653	6·5	—	14	2	21	2	3	56	98	1·0	1562	15·7
Bethnal Green ...	110,085	1	390	552	1	4	—	9	163	3	2	1125	10·1	—	12	3	56	8	1	69	149	1·3	1550	13·9
Stepney	232,506	1	1023	795	—	33	1	13	219	12	1	2038	8·9	1	15	9	45	17	6	112	205	0·9	3403	14·4
Poplar	153,644	1	369	323	—	24	—	17	130	16	6	886	5·7	—	9	4	34	26	6	65	144	0·9	2246	14·4
South Districts:																								
Southwark	179,971	—	799	504	—	12	—	19	208	6	2	1550	8·5	—	19	4	42	10	3	92	170	0·9	2728	14·9
Bermondsey	124,239	—	399	283	—	8	—	3	84	4	—	781	6·2	—	23	5	21	5	3	52	109	0·9	1729	13·7
Lambeth...	282,322	1	1033	544	—	16	—	17	190	10	7	1818	6·3	—	26	16	62	12	4	89	209	0·7	4194	14·6
Battersea	159,316	3	495	244	—	11	—	11	95	13	6	878	5·4	—	18	3	20	6	3	31	81	0·5	2063	12·7
Wandsworth... ...	333,693	—	905	535	—	18	—	31	147	13	9	1659	4·9	—	18	7	41	14	2	45	127	0·4	3783	11·2
Camberwell	273,802	—	725	511	—	10	—	14	151	6	8	1425	5·1	—	31	12	35	15	3	94	190	0·7	3441	12·4
Deptford...	111,205	—	521	263	—	8	—	8	72	2	4	878	7·8	—	21	9	16	1	2	32	81	0·7	1447	12·8
Greenwich	98,484	—	483	276	—	20	—	5	51	9	1	845	8·4	—	12	7	16	10	2	26	73	0·7	1354	13·5
Lewisham	167,754	—	657	374	—	4	—	6	91	12	3	1147	6·7	—	3	9	20	5	—	16	53	0·3	1943	11·4
Woolwich	136,237	4	239	374	—	27	—	7	68	6	1	726	5·2	2	7	3	27	11	5	19	74	0·5	1683	12·2
Port of London ...	—	2	2	1	—	6	—	—	—	—	—	11	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

remained under treatment at the end of the year, against 68, 50, 37, 32, and 23 at the end of the five preceding years. The greatest proportional prevalence of erysipelas occurred in Stoke Newington, Shoreditch, Bethnal Green, Stepney, Poplar, and Southwark. The 313 cases of puerperal fever notified during the year included 35 in Fulham, 31 in Wandsworth, 29 in Islington, 19 in Southwark, and 17 each in Hackney, Poplar, and Lambeth; in the two preceding years the notified cases of this disease numbered 199 and 158. The 197 cases of cerebro-spinal meningitis included 16 in Islington, 16 in Poplar, 13 in Wandsworth, 12 in Stepney, and 12 in Lewisham; while of the 93 cases of poliomyelitis 9 belonged to Wandsworth, 8 to Camberwell, 7 to Lambeth, and 6 each to Hammersmith, Hackney, Poplar, and Battersea.

The mortality figures in the table relate to deaths of civilians actually belonging to the various metropolitan boroughs, and are obtained by distributing the deaths in institutions among the boroughs in which the deceased persons had previously resided. During the 53 weeks ended Jan. 3rd last the deaths of 59,255 London residents were registered, equal to a death-rate of 13·4 per 1000; in the three preceding years the rates had been 14·3, 14·7, and 18·6 per 1000. The lowest death-rates last year were 11·2 in Hampstead, 11·2 in Wandsworth, 11·4 in Lewisham, 12·1 in Fulham, 12·2 in Woolwich, and 12·4 in Camberwell; the highest rates were 14·9 in Kensington, 14·9 in Southwark, 15·2 in St. Marylebone, 15·2 in Finsbury, 15·7 in Shoreditch, and 16·2 in Holborn. The deaths from all causes included 2937 which were referred to the principal infectious diseases; of these 5 resulted from small-pox, 359 from measles, 145 from scarlet fever, 777 from diphtheria, 220 from whooping-cough, 59 from enteric fever, and 1372 from diarrhœa and enteritis among children under 2 years of age. The death-rates from these diseases in the aggregate ranged from 0·3 in Hampstead, in the City of London, and in Lewisham, 0·4 in the City of Westminster, in Holborn, and in Wandsworth, to 0·9 in Hackney, in Stepney, in Poplar, in Southwark, and in Bermondsey, 1·0 in Shoreditch, and 1·3 in Bethnal Green. Of the 5 deaths from small-pox 2 belonged to Woolwich, and 1 each to St. Pancras, Islington, and Stepney. The 359 fatal cases of measles were less than a quarter of the average number in the five preceding years; this disease was proportionally most fatal in Chelsea, St. Marylebone, Finsbury, Shoreditch, Bermondsey, Deptford, and Greenwich. The 145 deaths from scarlet fever were 57 below the average number; the greatest proportional mortality from this disease was recorded in Chelsea, Lambeth, Deptford, Greenwich, and Lewisham. The 777 fatal cases of diphtheria were 113 in excess of the average number; this disease showed the greatest proportional fatality in Stoke Newington, Hackney, Bethnal Green, Poplar, Southwark, and Lambeth. The 220 deaths from whooping-cough were about one-fifth of the average number; the highest rates from this disease were recorded in Stoke Newington, Hackney, Poplar, Greenwich, and Woolwich The 59 deaths from enteric fever were 45 fewer than th average number, and included 6 in Stepney, 6 in Poplar 5 in Woolwich, and 4 in Lambeth. The 1372 deaths from infantile diarrhœa and enteritis were 612 below the average the mortality from this disease was greatest in Kensington Hammersmith, Shoreditch, Bethnal Green, Stepney, an Southwark. In conclusion, it may be stated that th aggregate mortality in London last year from these principa infectious diseases was 48 per cent. below the average.

SCOTTISH VITAL STATISTICS FOR 1919.

The figures for 1919—to which reference is made in preface to those for the last quarter of that year—show a rising birth-rate, an unusually high marriage-rate, and normal death-rate. Births numbered 106,263, being some 770 more than the previous year. Marriages numbered 44,126, the highest registered in any year since the institution of nationa registration. The previous maximum was 36,233 in 1915 Deaths numbered 75,141, which is 404 more than the mean o the preceding five years, but 3231 less than those for 1918 The birth-rate for the year was 21·7, the marriage-rate 9·0 and the death-rate 15·4 per 1000. The infantile mortality was 101·6. Deaths from phthisis were remarkably low, only 88 per 100,000, the lowest yet recorded. Those from all forms of tuberculous disease showed also marked reduction—129 per 100,000—also the lowest on record. The deaths from cancer show an increase, and now outnumber those from phthisis by approximately 32 per cent. The death-rate from the principal epidemic diseases amounted to 0·92 per 1000.

For the last quarter the birth-rate was as high as 27·9 per 1000, the marriages had increased to 9·2, and the deaths had fallen to 13·1. The infantile mortality was only 74, and deaths from epidemic diseases 0·8 per 1000.

Correspondence.

"Audi alteram partem."

MEDICAL LITERATURE FOR VIENNA.

To the Editor of THE LANCET.

SIR,—We have received from Professor Wenckebach sad news concerning the state of Vienna and Austria. Professor Wenckebach, although he accepted the call to Vienna but a short time before the war, has felt it his duty to abide with the suffering people who honoured him in the days of their prosperity. On the general misery of Austria in material needs it is not our purpose to dwell—it is but too well known; the Professor's appeal is for the intellectual needs of a people whose souls are starving. In their penury he says that not a farthing can be had for books or journals, home or foreign, so that for the last three or four years neither teachers nor students have been able to learn what is going on in academical circles. His direct appeal to Great Britain is for recent medical and scientific literature, for which students in all faculties are athirst. He describes the zest with which a group of students will pounce upon any fragment of a journal which may drift into their bare libraries.

May we, then, beg your readers not to throw away journals, books, or papers, and perhaps, furthermore, to make some little sacrifice to spare such literature for the Vienna Medical School? Professor Starling was to have joined us in this appeal, but left for Bombay before his signature was secured. Packets for Professor Wenckebach may be sent to Messrs. Schenker and Co., of 93, Bishopsgate, London, E.C., who have kindly undertaken to forward them in bulk to his care. Any small donations towards transport would be thankfully received by the firm.

We are, Sir, yours faithfully,
CLIFFORD ALLBUTT.
Cambridge, March 22nd, 1920. J. MACKENZIE.

LIFE ASSURANCE AND GLYCOSURIA.

To the Editor of THE LANCET.

SIR,—In a very valuable paper in your issue of March 27th Dr. R. T. Williamson states that he considers that in cases of glycosuria it is in the interest of the proposer that he should be informed why he has been rejected; and, further, that this should be done by the medical examiner. He calls attention to the rule of many insurance companies that no information as to the medical examination should be given by the medical officer to the proposer.

This rule is very wisely adopted and insisted upon by insurance companies. It is, on the other hand, frequently broken, often to the disadvantage of the company and the great annoyance of the management, both at the head office and at branches, as well as to the proposer himself. Difficult and often acrimonious correspondence may result. In the case of the occasional examiner local difficulties are easily created between the patient and his own medical attendant, or between the medical attendant and the medical examiner.

The proper course for a proposer to adopt when he is declined or postponed for life assurance is to consult his own medical attendant, and it is for the latter to make inquiries from the medical officer of the company should he fail to discover the reason for the declension or postponement of his patient's life. I have never known the refusal of permission to give the information in this way.

Very frequently the request for another examination of the urine is sufficient to induce the proposer to see his medical attendant. It is for the insurance examiner at the second interview to go into the question of whether diet or treatment have been adopted if the result of the tests should now prove satisfactory.

I am, Sir, yours faithfully,
THOMAS D. LISTER,
President, Assurance Medical Society.
Harley-street, W., March 27th, 1920.

ANÆSTHETISTS' FEES.

To the Editor of THE LANCET.

SIR,—Following on the letters in your columns from Mr. Bellamy Gardner and Mr. J. H. Chaldecott an informal meeting was held at Mr. Gardner's house of a number of representative anæsthetists to consider the question of their fees. The grievances of anæsthetists were freely discussed. Some of these are unavoidable, but others, being avoidable, ought to be removed. Of the unavoidable the chief is that an anæsthetist has to accept a case at the time and place offered or refuse it owing to previous engagements. Thus he has to refuse a considerable percentage of the work offered to him. How many other specialists are in a similar position?

The avoidable grievances are more numerous. In the first place there is no definite scale of fees that is recognised by surgeons, general practitioners, and the public. A good general working agreement in pre-war days was 10 per cent. of the surgeon's fee, with a minimum of 3 guineas. This very moderate scale was often not reached, and it is being felt now by anæsthetists that revision (in an upward direction, of course) is called for at the present time. This 10 per cent. basis is manifestly inadequate in cases such as nose, throat, and mouth operations, where exceptional skill and experience are required and exceptional risks are involved. Again, an abdominal operation is supposed to command the statutory fee of 100 guineas. In many cases, however, the surgeon agrees to reduce his fee to, say, 70 or 50 guineas, and it is at least an arguable point whether the anæsthetist, whose fees are on a much lower scale, should be expected to accept a strictly proportionate reduction.

But the main grievance of the anæsthetist is that in too many cases he is regarded as an anonymous nuisance, he is not consulted about his fee, he does not know whether he is expected to look to the surgeon, the general practitioner, or the patient for his remuneration, and falling between three stools he is either not paid at all or receives some months later a more or less adequate fee which ought to have been paid at the time of operation. I am, Sir, yours faithfully,

LLEWELYN POWELL.
Duke-street Mansions, Grosvenor-square, W.,
March 29th, 1920.

PARAPHRENIA.

To the Editor of THE LANCET.

SIR,—In your issue of March 27th Dr. W. H. B. Stoddart states that chronic hallucinatory psychosis as described by me in a paper read at a recent meeting of the Medico-Psychological Association is identical with the paraphrenia of Kraepelin. It is not easy to go fully into the differential diagnosis within the limits of a letter. It may, however, be pointed out that in chronic hallucinatory psychosis the patient is the subject of hallucinations for a long period, in some cases even for many years, before delusions develop. In the second stage delusions are formed which are the logical result or explanation of the hallucinations. So far as my experience goes there are these two stages only. In paraphrenia there are at least three stages. The first is the period of "false interpretation" in which the patient has vague delusions of persecution. "The second stage occurs *some years later*, and is characterised by the development of hallucinations of hearing." The quotation is from Dr. Stoddart's book; the italics are mine. In the third stage delusions of grandeur develop.

In my paper I pointed out the similarity of chronic hallucinatory psychosis and chronic hallucinatory insanity of alcoholic origin. Dr. Stoddart in his book gives the differential diagnosis of this latter disease from paraphrenia in the following words: "In this disorder hallucinations occur in the earlier stages and appear to be the foundation of the delusions, whereas in paraphrenia hallucinations appear late in the course of the disease as a kind of crystallisation of the delusions." This sentence summarises the position excellently as regards chronic hallucinatory psychosis and paraphrenia. With regard to melancholia and dementia præcox I pointed out how unsatisfactory it was that many clinicians put the cases I had in mind in these groups, and I gave in detail the differential diagnosis.

I quite agree that psycho-analysis would be most harmful in patients suffering from well-marked delusions of persecution or grandeur described by Kraepelin as cases of paraphrenia. On the other hand, in the first stage of chronic hallucinatory psychosis the sole symptom is the presence of hallucinations. These, in my belief, develop owing to mental conflict, and repression; and then it is that psycho-analysis is likely to be beneficial. As Dr. Stoddart was unavoidably prevented from hearing the paper read, he is no doubt relying on the report of the meeting in THE LANCET of March 20th. This, of course, is very condensed. The paper will appear in full in the next number of the *Journal of Mental Science*, and if, after studying the clinical details of those patients who are given as examples, Dr. Stoddart is still of the opinion that they are cases of paraphrenia I hope he will renew his attack. After all, what is paraphrenia? It is only Magnan's "*délire chronique*" served up in a new form. Kraepelin admits as much with regard to paraphrenia systematica. I am, Sir, yours faithfully,

R. H. STEEN.

City of London Mental Hospital, near
Dartford, Kent, March 27th, 1920.

TUBERCULOSIS AND PENSIONS.

To the Editor of THE LANCET.

SIR,—The note in your last issue on the Diagnosis of Tuberculosis in Recruits and Pensioners by Dr. John Guy is timely. On looking through my records it is surprising to see how many men are getting expert at recounting symptoms which they think will lead to a diagnosis of tuberculosis, and which observation in a sanatorium entirely fails to confirm. Perhaps the most difficult are those who tell a history of hæmoptysis, though many give themselves away by their extravagant statements as to the amount and the circumstances.

To show how many are the cases of deliberate or subconscious malingering I have gone into my records here for the last six months, and find that the figures are sufficiently remarkable to bring before your notice. The cases are sent in by the county tuberculosis officers whenever the history or symptoms appear to indicate that careful clinical investigation may be required to settle the diagnosis. The concentration methods of examining the sputum in use at the county laboratories (under the control of Dr. S. Barwise, county medical officer of health) settle the diagnosis of some of them quite clearly by the finding of tubercle bacilli, even when in very small numbers. The "negative" cases are given exercise tests with rectal temperature controls, an X ray screen and plate examination is made, and in some cases an attempt is made to induce focal reactions with tuberculin where there are no contra-indications to such a method. The period of observation takes about ten days, and includes careful clinical examinations at different times of the chest.

What have been the results? Out of 103 cases in six months, 25 were "flagrant" cases of tuberculosis with positive sputum: 52 were very early and "closed" cases: and 26 were "non-tuberculous." That is, *one-quarter* of all the admissions of ex-soldiers were negative to all tests, or, as I prefer to put it, not suffering from active or recent tuberculosis. Now, on looking into the statements of these men with regard to their symptoms, one is struck by the fact that they seldom claim less and often more than the "sputum positive" case, shortness of breath and loss of voice being the most frequent symptoms. If kept in bed under close observation many of these cases get tired of the pretence and freely admit they are now quite well—within a week.

At a time when the financial resources of the country are strained to the utmost it is essential that money should not be frittered away in pensions to the undeserving, and, while it is conceded that the ex-soldier should have the benefit of any doubt that may exist, it is very important that all reasonable means to clear up such doubts should be taken. A few pounds spent on a proper diagnosis may save many hundred pounds in pension money, and many a man's self-respect may be restored by being firmly told that he has no claim to a pension. Hasty diagnosis on the lines of least resistance is more common and more expensive to the country in cases of suspected tuberculosis than in any other condition.

I am, Sir, yours faithfully,

W. C. FOWLER.

Derbyshire Sanatorium, Chesterfield, March 29th, 1920.

THE DRINKING OF METHYLATED SPIRITS.

To the Editor of THE LANCET.

SIR,—Partly on account of the increased cost of whisky, brandy, &c., and partly because the purchase of these spirits is restricted to a few hours during the day, the drinking of methylated spirits appears to be greatly on the increase. I have had under treatment recently several patients who have taken to methylated spirits when nothing better was obtainable, and there have been references to the practice in the daily press.

A simple method of making this beverage unpopular is to add tartar emetic, ½ gr. to each ounce, and to label the mixture "poison." I have for many years had this addition made to the methylated spirit used for household purposes in an institution with which I am connected, and I believe that the "poison" label has been sufficient to deter the inmates from sampling the stuff. The cost of the addition to all the methylated spirit sold to the public would not be heavy, say 1*d*. a gallon, and the cost of other additions such as shellac or naphtha would be saved, though to colour the mixture blue (which I have never done) might be an advantage.

I am, Sir, yours faithfully,

F. S. D. HOGG.

Rickmansworth, March 29th, 1920.

UNIVERSITY COLLEGE, LONDON: WAR MEMORIAL TO FALLEN STUDENTS.

To the Editor of THE LANCET.

SIR,—We trust you will give us the hospitality of your columns to call the attention of former student of University College and University College Hospita London, to the memorial we are endeavouring to rais to college and hospital men who fell in the war. Owin to the many changes that have taken place during an since the war, our address-list is not complete. It wi be of great assistance to us if all members of the Colleg who have not already received our appeal will sen post-cards with their names and addresses and dates c student years to the honorary secretary. We sha then be very glad to send them full particulars of ou war memorial scheme. We hope we may rely on th support of all students, past and present.

We are, Sir, yours faithfully,

GREGORY FOSTER,
Chairman.
G. BLACKER,
Vice-Chairman.
LAWRENCE SOLOMON,
Hon. Secretary.

University College, London, March 25th, 1920.

PAY IN THE INDIAN MEDICAL SERVICE.

To the Editor of THE LANCET.

SIR,—May I place before your readers interested in I.M.S. prospects the following facts showing the relatively deteriorated condition of the I.M.S. both in relation to their fellow military officers, and to the other scientific services in India.

Army Instruction India 321 of 1919 fixes a new scale of consolidated pay for I.M.S. officers, abolishes the station hospital allowances introduced in Indian Army Instruction 1343 of 1918, and continues in force the abolition of all previous allowances enumerated in the latter Indian Army Instruction—viz., additional charge allowances, horse allowances, and plurality of charges.

Indian Army Order No. 86 S fixes a new rate of grade pay for Indian Army regimental officers, but continues the old rates of staff allowances (vide table below)—viz, company officers, Rs 100 per mensem), company commander (Rs 200 per mensem), quartermaster (Rs 150 per mensem), adjutant (Rs 200 per mensem), second in command (Rs 250 per mensem), command (Rs 600 700 per mensem), and depot command (Rs 400 per mensem) This results in salaries far above the new rates of I M S salaries

This Indian Army Scale of Salaries of I A O 86 S was fixed for one specified reason only—viz, "high cost of living" The I M S new scale of salaries of A I I 321 was fixed for one specified reason only—viz, "to attract European candidates of the highest professional qualifications'

It will be observed from the appended table, for example, that the minimal salary of an Indian Army captain of nine years completed service exceeds the salary of an I M S captain of nine years completed service and this in spite of the I M S captain s supposed seniority *of* six years due *to* his previous professional training

Will *candidates of the type specified be attracted by* salaries below those of fellow military officers six years their juniors whose salaries are fixed to meet "the high cost of living ' The new scale of salaries of the Indian Forests and Public Works Engineers are on the annual incremental system, and are superior to the I M S salaries Starting with Rs 450 in the former and Rs 550 in the latter service, Rs 1000 is reached at the tenth and Rs 1500 at the twentieth year of service

I append a table showing the *relative position of the* I M S to the Indian Army The salaries are given in rupees per mensem

Rank and years of completed service	I M S	Indian Infantry *	Indian Cavalry	Supply and Transport †
	Consolidated + nil	Grade + Staff	Grade + Staff + Horse allowance	Grade + Staff
Lieut 7 yrs	550	475+ 100 or 150 200 250 550+ 400	475+ 100 or +60 150 200 250 550+ 400 +60	475+ 250 or 550+ 300
Captain 5 yrs 7 9 10	700 750 800 900	700+ 100 or 150 200 750+ 250 400	700+ 100 or +60 150 200 750+ 250 +70 400	700+ 300 or 750+ 400
Major 15 yrs 20	1000 1150	900+ 200 or 250 400 950+ 600	900+ 200 or +90 250 400 950+ 700 +90	900+ 400 or 500 950+ or 600
Lieut Colonel	1550	1150+600	1150+700+90	1150+800 or 1000

* *Vide current Indian Army Orders* and Indian Army Gazettes to see the enormous numbers of Captains and Lieutenants holding company command depot command and second *in command*

† Vide Indian Army *Quarters List to see grades of* Lieutenants Captains and Majors

Thus it will be seen *that the I M S salaries*, although consolidated, like the Forests and P W D, lack their steadily *progressive* scale Like the Indian Army, the I M S has long intervals without increments, but lacks its staff pay of progressively increasing amounts to make up for the fewness of increments of grade pay Thus the I M S salaries have the disadvantages of both and the advantages of neither, and are inferior *in amount* to either, although supposed to attract men *older* in years and with more *costly training'* *Let it* also be remembered that the six years seniority previously given to I M S officers no longer exists, owing to the Indian Army acceleration of promotion

I am, Sir, yours faithfully,
I M S

March 4th 1920

TAUNTON HOSPITAL—As a portion of the memorial to the late Lord St Audries the West Somerset Agricultural Memorial Fund Committee has raised £500 for the endowment of a bed in the Taunton and Somerset Hospital

Parliamentary Intelligence.

HOUSE OF COMMONS

WEDNESDAY, MARCH 24TH

Nurses' Registration Council

Mr **GRUNDY** asked the Minister of Health whether he could give an assurance that in *the appointment of the first* council under the Nurses Registration Act there would be included representatives directly nominated by bona fide nurses trade unions, as distinct from associations presumed to cater for nurses, but directed and controlled by persons other than nurses—Dr **ADDISON** replied Under the schedule to the Act I am bound to consult, and I have consulted three *organisations* specifically named and such *other associations or organised bodies of nurses or matrons as* ask to be consulted No organisation is given the right of direct nomination to the General Nursing Council The invitations in connexion with the membership of the Council will be issued to morrow

Deaths from Anæsthetics

Mr **GILBERT** asked the Minister of Health whether his attention had been *called to some recent* inquests held in London into deaths caused by the use of various anæsthetics, whether he had received any riders passed by the juries in these cases, whether he proposed to make any further inquiry into these cases and whether he proposed to introduce *legislation to provide that* anæsthetics should only be administered by properly qualified medical men—Dr **ADDISON** replied I am in communication with the Home Office, but am not at present in a position to make any statement with regard to the last part of the question

Health Services in London

Sir C **COBB** asked the Minister of Health whether he had received a report, *which was adopted by the London County* Council *on* Dec 19th, 1919, embodying a scheme for the better organisation of health services in London whether he was in general agreement with the proposals of the London County Council, and, in order that the County Council *might be in a position to develop its proposals in* greater *detail*, whether he was prepared to receive at an early date the deputation suggested by the Council—Dr **ADDISON** replied I have received the report to which my honourable friend refers, and it is being carefully considered, but as my *honourable* friend knows, it raises a number of *most* important and complicated questions and I think it would be of advantage both to the Council and the Government that these questions should be further examined before I receive the suggested deputation

Clothing for Tuberculous Patients

Mr **GWYNNE** asked the Pensions Minister whether a decision had yet been reached *in regard* to the better provision of special clothing and bedding for ex Service men suffering from tuberculosis, and, if so, what were the concessions—Sir J **CRAIG** (Parliamentary Secretary *to the* Ministry of Pensions) replied Under the present regulations of the Ministry underclothing and *great* coats are provided on *loan for* the use of men in sanatorium and other institutions, and great coats for the use, where necessary, of men under out patient treatment at home Extra blankets are also provided by local committees *for men suffering* from tuberculosis *who* are *under* open air treatment at home, and *for* whom such extra blankets are *certified to* be necessary The arrangements under which these articles are provided appear to be working satisfactorily, but *if my* honourable friend has information to *the contrary* my right honourable friend will *be* glad to consider it

Indian Medical Practitioners in British East Africa

Mr **WATERSON** asked the Under Secretary of State for the *Colonies* whether Indian medical practitioners in British East Africa were forbidden to carry on independent medical practice, and, if so, on what grounds—Lieutenant Colonel **AMERY** replied *The question of* medical practice in the East Africa Protectorate is governed by the Medical Practitioners' and Dentists' Ordinance, 1910 Under that Ordinance the holder of any British Indian degree diploma *or licence* entitling him to registration in the United Kingdom is entitled *to be registered* as a medical practitioner in the East Africa Protectorate Under the same Ordinance the practice of systems of therapeutics according to native Indian or other Asiatic *method is permitted for* persons recognised by the *community* to which they belong to be *duly trained* in such practice, subject to provisos that such systems may only be practised amongst the community to which the practitioner belongs, and that *no* Act under any such system on *the part of such* persons as is dangerous to life shall be permitted

National Health Insurance Bill Expenses.

The money resolution in connexion with the new National Health Insurance Bill, which had passed through Committee, was reported to the House and agreed to.

THURSDAY, MARCH 25TH.

Sanatoriums for Uncertifiable Mental Cases.

Sir A. SHIRLEY BENN asked the Pensions Minister if he would state how many sanatoriums were provided by his Department for the benefit of uncertifiable border-line cases of loss of mental balance occurring among ex-soldiers as distinguished from neurasthenics of a pseudo-paralytic type, where they were situated, what accommodation they furnished, and were facilities afforded for interesting occupations for the purpose of promoting an early return to the conditions of industrial life.—Sir J. CRAIG replied: Eighteen institutions, providing 2046 beds, have been set up by the Ministry to deal with the cases described. They are situated at Edinburgh, Shotley Bridge, Leeds (2), Altrincham, Woolton, Stockport, Leicester, Maidenhead, Bath, Exeter, Orpington, Tooting, Denmark Hill, Roehampton, Chepstow, Craigend, and Leopardstown. Further institutions are in course of preparation. Occupational training has been provided at the majority of these homes, and at the remainder is being instituted as rapidly as possible. Accommodation in the treatment and training centres will also be available for the convalescent cases which still require treatment and training. There are, in addition, clinics at Lancaster Gate, Manchester, and elsewhere where out-patient treatment is given for the milder type of neurasthenic, such as the pseudo-paralytic type.

Mr. WATERSON asked the Minister of Health if it was his intention to start sanatoriums for early uncertifiable mental cases which did not at first involve detention; and, if so, could he state the approximate cost of such outlay.—Dr. ADDISON replied: I am afraid I cannot add anything to the answer which I gave on March 12th, in which I explained that any such scheme would require legislation, and I am not in a position to say when such legislation will be introduced.

Sanatorium Benefit under the Insurance Act.

Lieutenant-Commander KENWORTHY asked the Minister of Health if he would state to whom and in what manner it was proposed to transfer the duty of providing sanatorium benefit to insured persons, hitherto performed by the Insurance Committees, under the provisions of the new National Health Insurance Bill.—Dr. ADDISON replied: Institutional treatment for insured persons suffering from tuberculosis is already being provided in most areas by the public health authorities under agreements made with the Insurance Committees, and it is proposed to transfer the duty of providing such treatment to appropriate public health authorities. I am hoping to introduce legislation for this purpose at an early date. Domiciliary treatment for insured persons suffering from tuberculosis will be provided by Insurance Committees under Clause 4 (3) of the National Health Insurance Bill as part of medical benefit.

MONDAY, MARCH 29TH.

Medical Benefit Regulations for Scotland.

Major HENDERSON asked the Secretary for Scotland whether he was aware that English medical panel practitioners had already received copies of the Medical Benefit Regulations for 1920, whereas Scottish medical panel practitioners had been unable to obtain the regulations, although they had applied for them; and whether, under these circumstances, he would take steps to have the regulations published and circulated to the medical profession without further delay.—Mr. MUNRO replied: The answer to the first part of the question is in the affirmative. I understand, however, that proofs of the regulations were issued to Panel Committees in Scotland on Jan. 19th. The Scottish Regulations cannot be finally issued until suggestions for amendment made by the doctors have been adjusted in consultation with the Scottish Committee of the British Medical Association. A meeting on the subject takes place to-morrow, after which the regulations will be issued as speedily as possible.

TUESDAY, MARCH 30TH.

Medical Referees and Industrial Fitness.

Mr. DUNCAN GRAHAM asked the Parliamentary Secretary to the Pensions Ministry whether he was aware that discharged soldiers who had been wounded or who had contracted disease during their service in the army, and were consequently unfit to resume their former occupations, were being certified by medical boards in the industrial districts of Scotland as being fit for light employment, which form of employment was being withheld from them either because of the inability or unwillingness of the employers to provide it; was he aware that many of the decisions of the medical boards were opposed to the opinions held by the panel doctors regarding the fitness of the men affected for work; and whether he would agree to set up a tribunal, composed exclusively of Members of the House, whose functions should be to determine the question of whether the views held by the panel doctors or the medical board accurately described the men's condition.—Sir J. CRAIG replied: The honourable Member is presumably referring to medical referees, as medical boards do not certify fitness for work. It is contrary to instructions for a medical referee to certify any man as "fit for light employment," and whenever a case of this kind is brought to notice the attention of the medical referee at fault is drawn to it. My right honourable friend does not think it necessary to set up a tribunal such as is suggested in the last part of the question.

Medical News.

BRITISH EMPIRE HONOURS.—Among the very numerous appointments to the civil division of the Order of the British Empire for services in connexion with the war are the names of four medical men to be Knights-Commanders, namely: Dr. Isaac Bayley Balfour, professor of botany in the University of Edinburgh; Major James William Beeman Hodsdon, F.R.C.S.Edin., member of Medical Advisory Board to the late Ministry of National Service; Lieutenant-Colonel David Wallace, F.R.C.S., Red Cross Commissioner and Military Inspection Officer, Auxiliary Hospitals; and Colonel Arthur L. A. Webb, Director-General of Medical Services at the Ministry of Pensions. Knighthoods have also been given to Professor William Henry Bragg, Quain professor of physics in the University of London; to Mr. Sidney Frederic Harmer, F.R.S., director of the Natural History Museum; and to Mr. Frederick J. Willis, assistant secretary to the Ministry of Health. The names of Commanders and Officers are unavoidably postponed to a later issue.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—An ordinary Comitia of the College was held on March 29th, Sir Norman Moore, the President, being in the chair. After the minutes of the meeting of the Censors' Board and of the previous meeting of the Comitia had been read, the President delivered the annual address, in which he reviewed the honours conferred upon the Fellows, Members, and licentiates during the last 12 months. He also announced that the College list contained the names of 357 Fellows, 506 Members, 13,800 licentiates, 1 extra-licentiate, 863 diplomates in public health, and 18 tropical diplomates. Eloquent obituary notices were then given of the 11 Fellows who have died during the year—viz., Dr. F. J. Smith, Dr. Joseph Wiglesworth, Dr. G. Bernard Brodie, Dr. E. G. Fearnsides, Professor W. S. Greenfield, Dr. C. A. Mercier, Dr. Guthrie Rankin, Sir William Osler, Dr. Laurence Humphry, Sir James Alexander Grant, K.C.M.G., and Dr. Samuel H. West.—The President then vacated the chair, and the election to the office of President for the ensuing year was held, Sir Norman Moore being re-elected. He then gave his faith to the College.—Licences to practise physic were granted to George Cleverdon Hartley, Birmingham University, and to Kathleen Suzanne Vine, Royal Free Hospital.—After returning thanks to the College the President declared the Comitia closed.

UNIVERSITY OF DURHAM: FACULTY OF MEDICINE.—At examinations recently held the following candidates were successful:—

THIRD EXAMINATION FOR DEGREE OF BACHELOR OF MEDICINE.

Materia Medica, Pharmacology, and Pharmacy; Public Health; Medical Jurisprudence; Pathology and Elementary Bacteriology.—Francis Joseph Benjamin, John James Norman Daniels, Dorothy Esther Elliott, Roland Hewitson, Joseph Jackson, Morris Mickler, Lionel Myers (second-class honours), Joan Winifred Nicoll, Robert John Perring, Sydney Terry Pybus, Mary Foster Richardson, Olive Constance Wilson, and Philomena Ryland Whitaker.

UNIVERSITY OF ABERDEEN.—At the graduation ceremony on March 24th the following degrees were conferred:—

DOCTOR OF LAWS (LL.D.).

Sir Jagadis Chandra Bose, C.S.I., C.I.E., Founder and Director, Bose Research Institute, Calcutta (in absentia); Dr. William Bulloch, Professor of Bacteriology, University of London; Sir Robert Jones, K.B.E., C.B., Surgeon in Liverpool, late Major-General, A.M.S., and Inspector of Military Orthopædics; and Dr. David Nicolson, C.B., Lord Chancellor's Visitor in Lunacy since 1896, Medical Adviser of the Home Secretary in Criminal Mental Cases (in absentia).

DOCTOR OF MEDICINE (M.D.).

Alistair Sim Garden, James Leask, and Helen Lillie.

BACHELOR OF MEDICINE (M.B.) AND BACHELOR OF SURGERY (CH.B.).

Dorothy Edith Bryant, Alexander Victor Reid Don, Murray Young Garden* (second-class honours), Charles Albert Hay, Dorothy Mildred Holmes, Alice Mabel Lee Innes, Robert Cran MacLennan, Joseph Mackenzie Stuart, Douglas Mackenzie Thomson, and Ida Elizabeth Wood.

* Passed Final Medical Professional Examination with much distinction.

DIPLOMA IN PUBLIC HEALTH

Alfred George Brown Duncan Richard Ramsay Garden Evan Alexander Mackenzie Lachlan Martin Victor Mitchell (with credit) and Anne Simpson

BRITISH MEDICAL ASSOCIATION SCHOLARSHIPS AND GRANTS IN AID OF SCIENTIFIC RESEARCH —The Council of the British Medical Association is prepared to receive applications for research scholarships as follows 1 An Ernest Hart Memorial Scholarship, of the value of £200 per annum, for the study of some subject in the department of State Medicine 2 Three Research Scholarships, each of the value of £150 per annum, for research into some subject relating to the causation, prevention, or treatment of disease Each scholarship is tenable for one year, commencing on Oct 1st, 1920 A scholar may be reappointed for not more than two additional terms

Grants —The Council of the British Medical Association is also prepared to receive applications for grants for the assistance of research into the causation treatment, or prevention of disease Preference will be given, other things being equal, to members of the medical profession and to applicants who propose as subjects of investigation problems directly related to practical medicine

The conditions of the award of scholarships and grants are stated in the regulations, a copy of which will be supplied on application to the medical secretary of the Association

All applications, both for scholarships and for grants for the year 1920 21, must be made not later than Saturday, May 29th, 1920, in the prescribed form, a copy of which will be supplied by the medical secretary on application Each application should be accompanied by testimonials, including a recommendation from the head of the laboratory, if any, in which the applicant proposes to work, setting out the fitness of the candidate to conduct such work, and the probable value of the work to be undertaken This is not intended, however, to prevent applications for grants in aid of work which need not be performed in a recognised laboratory Applications should be made to Dr Cox, medical secretary of the Association, at 429, Strand, London, W C 2

NATIONAL COUNCIL FOR COMBATING VENEREAL DISEASES —A meeting of the Council was held on March 29th at the Royal Society of Medicine, Lord Sydenham presiding Lord Gorell (chairman of the Parliamentary Committee), Sir Malcolm Morris, Mr E B Turner, Mrs Torrey, Mrs Gotto (general secretary), and Dr Douglas White (honorary medical secretary) were present, but the general attendance was small Lord Sydenham referred to the controversy on self disinfection, and regretted that the efforts which he had made to bring about a round table conference between the National Council and the Society for the Prevention of Venereal Disease had proved unsuccessful A section of the public, realising that there was a lack of agreement between these two bodies, might, he feared, be inclined to ignore the activities of both. For himself, he did not believe in the possibility of so organising methods of self disinfection as to render their adoption of value to the civilian community The use of prophylactic packets would, he trusted, never be advocated by the Council Lord Sydenham laid stress on the necessity of securing for sailors the same preventive and curative facilities as are available for landsmen Speaking of the work of the International Red Cross at Geneva, he informed his audience of the official recognition of the N C C V D by that body In concluding he gave an impressive and sympathetic eulogium on the late Sir Robert Morant The greater part of the meeting was given up to a discussion on compulsory notification The importance of the subject was indicated by the chairman's statement that 40 per cent of patients were believed to discontinue treatment for venereal disease before finishing the course Strong views were enunciated on both sides Sir Malcolm Morris, whilst recording his belief that the time was coming when notification would be enforced, thought that much educational and propaganda work remained to be done to enable the public mind to assimilate and approve of the measure Evidently a majority of those present favoured the introduction of some form of compulsion.

BOOKS, ETC , RECEIVED

MURRAY JOHN London
An Index of Symptoms By R W Leftwich M D 7th ed Pp 595 15s

PHILLIPS STANLEY, Brondesbury road London W M LEONARD Boston, U S A
Shell Shock and Other Neuropsychiatric Problems from the War Literature 1914-1918 By Dr E E Southard and Others (Case History Series) Pp 1004

ROUTLEDGE GEORGE AND SONS London
Sleeping for Health By E F Bowers M D Pp 128 2s 6d

UNIVERSITY OF LONDON PRESS, London
Diabetic Dieting and Cookery By P J Cammidge M D Pp 222 10s 6d

Appointments.

HOWELL B W F R C S has been appointed Surgeon to the Royal Surgical Aid Society

RLANFLL W R M D M R C P Physician to Out patients West End Hospital for Nervous Diseases

THORNTON G L M A Cantab M R C P Lond M R C S M C, Deputy Commissioner for Medical Services

Vacancies.

For further information refer to the advertisement columns

Barnsley Beckett Hospital —Jun H S £180
Bath Ear Nose and Throat Hospital Charles street Bath —Hon Anæsth
Bermondsey Borough —Two Temp Asst M O H s £600 Also Female Asst M O H £600
Birkenhead Borough Hospital —Sen and Jun H S s £200 and £170
Birmingham and Midland Ear and Throat Hospital —Asst S
Bradford City Education Committee —Asst Sch M O £600
Brighton Royal Sussex County Hospital —H P £150
Burnley Victoria Hospital—H S £250
Cancer Hospital Fulham road S W —Hon Dent S
Cardiff University College of South Wales and Monmouthshire —Professor of Physiology £900
Carshalton Surrey Queen Mary s Hospital for Children —Senior Asst and Junior Asst M O s £645 5s and £515 6s respectively
Derby Derbyshire Royal Infirmary —Oph H S £200
Derbyshire Education Committee —Sch Dentist £450
Gloucester Gloucestershire Royal Infirmary and Eye Institution —H P and Asst H S £175 and £150 respectively
Hammersmith Parish —Dist M O and Public Vaccinator £21
Hereford County and City Mental Hospital —Second Asst M O £350
Hospital for Consumption and Diseases of the Chest Brompton —H P 30 guineas
Hospital of St John and St Elizabeth 40 Grove End road N W —S
Huddersfield Royal Infirmary —Asst H S £150
Infectious Hospitals Service Metropolitan Asylums Board —Junior Asst M O s £515 6s
Italian Hospital Queen square W C —Hon Asst Anæsth
King s College Hospital Denmark Hill S E —Med Out patients O and Surg Out patients O £250
Larbert Stirling District Asylum —Female Third Asst M O £250
Leeds Public Dispensary —Res M O £200
Liverpool City and Port —Asst Port M O £650
Liverpool David Lewis Northern Hospital —Two H P s and One H S £150 each
Loughborough and District General Hospital and Dispensary —*Res H S* £200
Macclesfield Cheshire County Asylum Parkside —Asst M O £350
Manchester Ancoats Hospital —Res Surg O £200 Also H S £100
Manchester Children s Hospital Pendlebury near Manchester —Res M O £150
Manchester Hospital for Consumption and Diseases of the Throat and Chest Bowdon Cheshire —Res M O £350
Manchester St Mary s Hospitals for Women and Children —Hon Asst P
Manor House Hospital North End road Hampstead N W —H S *and Asst Anæsth* £150
Margate Princess Mary s Hospital for Children Cliftonville —Junior Asst M O £579 14s
Middlesbrough North Ormesby Hospital —Asst H S £175
Ministry of Health Whitehall S W —M O s £1000
Monmouthshire County Council.—Female Asst M O £500
Mothers Hospital 153 163 Lower Clapton road Hackney E —Res M O
National Hospital for Diseases of the Heart Westmoreland street, W —Hon Asst P
National Hospital for the Paralysed and Epileptic, Queen square, W C —Hon Gynæcologist
Newark Hospital and Dispensary —Res H S £200
Nottingham General Hospital —Cas H S £150
Paddington Green Children s Hospital London W —S and P s Also H P and H S £150 each
Plymouth Borough of —Asst Tuberc O £500
Portsmouth County Borough —Asst Tuberc O £500
Prince of Wales s General Hospital Tottenham N —H P and H S £200 each Also Jun H P and Jun H S £120 each Also Two Hon Asst P s
Queen Mary s Hospital for East End Stratford, E —*H P*
Reading Royal Berks Hospital —H S £200
Royal Dental Hospital of London Leicester square W —*House* Anæsth 10s 6d per attendance
Royal National Orthopædic Hospital 234 Great Portland street W —H S £200
St George s Hospital S W —Part time Asst £150
Salford Royal Hospital —Res S O £250 H S £150
Salford Union Infirmary —Senior Res Asst M O and Second Res Asst M O £450 and £350 respectively
Sheffield Royal Infirmary —Hon Radiologist £100
Shirlett near Much Wenlock King Edward VII Memorial Sanatorium —Res Med Supt £450
Stamford Rutland and General Infirmary Stamford —H S £200
Stockport Infirmary —Jun *Res M O* £200
Stoke-on Trent North Staffordshire Infirmary —H S £200
Straits Settlements and Federated Malay States —Thirty three M O s $440 per month
Sunderland Royal Infirmary Children s Hospital —Female Jun Res M O £150 Also Visiting M O £300
Sutton Surrey The Downs Sanatorium —Senior Asst M O £645 5s
Swansea General and Eye Hospital —Jun H S £200
Swindon Borough of —Asst M O H £650.

Tiverton, Devon, Hospital.—H.S. £100.

Ventnor, Isle of Wight, Royal National Hospital for Consumption and Diseases of the Chest.—Asst. Res. M.O. £300.

Victoria Hospital for Children, Tite-street, Chelsea, S.W.—Radiologist. £25.

West London Hospital, Hammersmith, W.—Asst. Anæsth.

Willesden Urban District Council, Health Department.—Asst. M.O. £500.

Wolverhampton and Midland Counties Eye Infirmary.—H.S. £200.

Wolverhampton and Staffordshire General Hospital.—H.S. £200.

Worcester County and City Mental Hospital, Powick.—Jun. Asst. M.O. £300.

The Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Bradford (North-East), Burton-upon-Trent, Llandilo, and at Waterford.

Births, Marriages, and Deaths.

BIRTHS.

Davidson.—On March 17th, at Priory-row, Coventry, the wife of Dr. Duncan Davidson of a son.

Fletcher.—On March 19th, at Devonshire-street, W., the wife of Capt. E. T. Fletcher, M.B., R.A.F.M.S., of a son.

Livingston.—At 47, Castle-street, Dumfries, on the 20th ult., to the wife of George R. Livingston, M.D., F.R.C.S. E.—a daughter.

Pitts.—On March 23rd, at a nursing home, the wife of A. T. Pitts, D.S.O., M.R.C.S., L.D.S., of Wimpole-street, W., of a daughter.

Pritchett.—On March 27th, at Gloucester-road, Elvaston-place, Kensington, the wife of Captain H. Norman Pritchett, R.A.M.C., of a daughter.

Reynell.—On March 24th, at 26, Nottingham-place, W. 1, to the wife of W. R. Reynell, M.D., M.R.C.P.—a son.

MARRIAGES.

Davies—Morgan.—On March 24th, at Llanwonno Church, Glamorganshire, Trevor Berwyn Davies, M.D., M.R.C.P., F.R.C.S., to Mary Gwladys, eldest daughter of Dr. Rhys D. Morgan, J.P., and Mrs. Morgan, Gurnos House, Ynysybwl, S. Wales.

DEATHS.

Robertson.—On March 28th, suddenly, at Brunswick-gardens, W., Frederick Marrant Robertson, M.D.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Communications, Letters, &c., to the Editor have been received from—

A.—Air Pollution Advisory Board, Manchester, Chairman of; Mr. A. J. Austin, Lond.; Actors' Orphanage, Lond.

B.—Dr. H. Brown, Lond.; Board of Education, Lond.; Dr. G. Blacker, Lond.; Mr. H. A. Barker, Lond.; Capt. W. Burridge, R.A.M.C., Swanage; Dr. J. Blomfield, Lond.; Mr. J. B. Burke, Lond.; Sir J. Byers, Belfast; Prof. W. B. Bell, Liverpool.

C.—Dr. H. P. Cholmeley, Forest Row; Dr. E. P. Cumberbatch, Lond.; Major W. B. Cosens, R.A.M.C.; Mr. W. Clarke, Geneva; Dr. E. L. Collis, Cardiff; Dr. P. J. Cammidge, Lond.; Cremation Society of England, Lond.; Dr. F. G. Collins, Lond.; Mr. V. Z. Cope, Lond.; Dr. R. Craik, Lond.

D.—Dr. S. Davies, Worthing; Dr. H. Davis, Lond.; Dr. H. Drinkwater, Wrexham; Dr. G. K. Dickinson, Jersey City; Prof. S. Delépine, Manchester.

E.—Mr. W. R. Edwards, Lond.; Major-General Sir George Evatt, Lond.; Mr. A. B. Elliott, Abergele.

F.—Dr. W. C. Fowler, Walton; Dr. C. Fothergill, Chorley Wood.

G.—Dr. W. Gordon, Exeter; Prof. A. D. Gardner, Oxford; Dr. W. E. Gye, Lond.; Mrs. M. Grieve, Chalfont St. Peter; Dr. L. G. Glover, Lond.; Dr. R. L. Gamlen, Stockport; Dr. H. O. Gunewardene, Lond.; Mr. E. W. H. Groves, Clifton; Dr. T. M. Guthrie, Rock Ferry.

H.—Mr. H. W. Holman, Lond.; Prof. A. J. Hall, Sheffield; Dr. H. A. Haig, Worthing; Mr. H. E. Haynes, Brentwood.

I.—*International Medical and Surgical Survey*, New York, Editor of; Invalid Children's Aid Association, Lond., Sec. of.

J.—*Journal of the Incorporated Society of Trained Masseuses*, Lond.

K.—Mr. J. G. Kerr, St. Helens; King's College Hospital Medical School, Lond., Sec. of.

L.—Dr. G. C. Low, Lond.; Dr. T. D. Lister, Lond.; Dr. E. C. Lowe, Southport; Dr. H. L. Lyon-Smith, Lond.; Dr. F. Langmead, Lond.; Lyceum Club, Lond., Sec. of.

M.—Ministry of Health, Lond.; Metropolitan Asylums Board, Lond.; Miss I. Meller, Lond.; Dr. R. P. Moncrieff, Gosforth; Mr. A. E. Mahood, Clifton.

N.—National Safety Council, Chicago.

P.—Mr. G. H. Payne, Lond.; Mr. L. Powell, Lond.; *The Pressman*, Lond., Manager of.

R.—Mr. H. Rundle, Southsea; *The Rift*, Birmingham; Royal Maternity Charity, Lond.

S.—Dr. M. C. Stopes, Leatherhead; Mr. D. W. Stevens-Muir, Blundellsands; Société des Sciences Médicales et Biologiques, Montpellier; Dr. R. H. Steen, Dartford; Dr. E. B. Sherlock, Dartford; Prof. J. Sherren, Lond.; Capt. C. F. Strange, R.A.M.C., Chatham; Save the Children Fund, Lond.; Dr. E. W. Scripture, Lond.

T.—Dr. A. H. Thompson, Lond.

U.—University of London, Academic Registrar of; University of London Military Education Committee, Sec. of; University of Liverpool, Registrar of; University of Manchester; University of Durham Faculty of Medicine; University of St. Andrews.

W.—Dr. F. J. Waldo, Lond.; Mr. K. Walker, Lond.; Prof. R. B. Wild, Manchester; Dr. S. A. K. Wilson, Lond.; Dr. W. H. Willcox, Lond.; World Trade Club, San Francisco.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Thursday, April 8th.

OBSTETRICS AND GYNÆCOLOGY (Hon. Secretaries—J. S. Fairbairn, Herbert Williamson): at 8 p.m.

Specimens:

Mr. T. G. Stevens: A Third Specimen of Douche-nozzle removed from the Female Bladder.

Mr. J. D. Barris: Cystic Embryoma of Ovary.

Dr. Eardley Holland: (1) A Placenta from a Combined Cast of Placenta-prævia and Accidental Hæmorrhage; (2) A Puerperal Uterus containing an Infected Fibromyoma.

Short Communications:

Dr. Williamson and Dr. Brockman: Two Specimens showing Extensive Fatty Change in Fibromyomata.

Lady Barrett: A Case with High Ammonia Coefficient.

Dr. Williamson: A Note on the Value of Blood-transfusion before Operation in Severe Secondary Anæmia.

Dr. A. C. Palmer; Two Cases of Rupture of the Vagina during Labour (with Specimens and Epidiascope Demonstration by Dr. Holland).

Mr. T. G. Stevens: A Case of Sacculation of Gravid Bicornuate Uterus.

Friday, April 9th.

ANÆSTHETICS (Hon. Secretaries—R. E. Apperly, Ashley S. Daly): at 8.15 p.m.

Annual General Meeting—Election of Officers and Council for 1920–1921.

Discussion (at 8.30 p.m.):

On "Anæsthesia in Operations on the Thyroid Gland," opened by Mrs. Dickinson Berry.

CLINICAL.—No meeting of this Section will be held on April 9th. The next meeting will be held on Friday, April 16th, at 5.30 p.m. (Cases at 5 p.m.) Those wishing to exhibit cases are requested to communicate with the Hon. Secretaries.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

Tuesday, *April 6th.—10 a.m., Dr. McDougal: Electrical Department.* 2. p.m., Dr. Pernet: Skin Diseases.

Wednesday.—10 a.m., Dr. A. Saunders: Medical Diseases of Children. 2 p.m., Mr. Gibb: Eye Disease.

Thursday.—2 p.m., Dr. G. Stewart: Nerve Disease. Mr. B. Harman: Eye Department.

Friday.—2 p.m., Dr. Morton: X Rays. Mr. Banks Davis: Diseases of the Throat, Nose and Ear.

Saturday.—2 p.m., Medical Cases.

Daily:—10 a.m., Ward Visits. 2 p.m., In-patient and Out-patient Clinics and Operations. Out-patient Department closed from April 1st to April 6th.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL (University of London).

A Course of Post-Graduate Lectures on Syphilis is being given by various members of the staff of King's College Hospital during the present year.

Friday, April 9th.—9.15 p.m., Sir StClair Thomson: Syphilis of the Throat, Larynx, &c.

UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE POST-GRADUATE LECTURES, at the Sheffield University Pathological Museum.

Wednesday, April 7th.—4 p.m., Prof. Connell: Pathology of Bone Disease.

SALFORD ROYAL HOSPITAL and ANCOATS HOSPITAL POST-GRADUATE DEMONSTRATIONS, at the two Hospitals alternately.

Thursday, April 8th.—4.30 p.m., Dr. Sturrock: Epilepsy. (At Salford Royal Hospital.)

BRIGHTON DIVISION OF THE BRITISH MEDICAL ASSOCIATION, at the Children's Hospital.

Thursday, April 8th.—4 p.m., Clinical Demonstration.

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POULTRY FARMING
AN OCCUPATION SUITABLE FOR CONSUMPTIVES

BY P C VARRIER JONES, M A CAMB ,
M R C S , L R C P LOND ,
HONORARY MEDICAL OFFICER PAPWORTH COLONY CAMBRIDGE

AND

SIR G SIMS WOODHEAD, K B E , V D , M D , LL D ,
PROFESSOR OF PATHOLOGY, UNIVERSITY OF CAMBRIDGE FELLOW
OF TRINITY HALL CAMBRIDGE

Poultry farming, to be at all successful, requires a full knowledge of the subject Such knowledge can only be acquired by careful and well directed practical experience No short course of training, such as that recommended and arranged by the Ministry of Pensions, is going to be of the slightest use; indeed, it cannot but be harmful Consumptive patients too often start poultry keeping with the idea that after the main work of the day is done, they will be able to attend to the few chickens that are to increase their weekly earnings In general a consumptive cannot manage a full day's work in the competitive business world Still less can he manage his chickens as a supplementary industry The inevitable result is that both the business and the chickens go to the wall. It is equally certain that the returns on a capital of, say, £100, will be out of all proportion to the time and energy which must be spent in carrying on a small farm How is the patient to obtain adequate housing and the ample food and clothing so necessary for his welfare? In bad health to begin with, and subject to frequent relapses at the most critical time of the year, the patient cannot look after his chickens unaided, and it is small wonder that the small farm is soon given up If the work is taken up on a larger scale, larger capital is required, and for the first year, even with the hardest work, there can be no income The energy, long hours, and constant care required for the building up of such a farm must, in most cases, be out of the question so far as the average consumptive is concerned

As a rule, the ex soldier has not the necessary capital to finance the business, much less the necessary money to pay wages for the help he undoubtedly requires The one man business, so far as the consumptive is concerned, is undesirable Help must be available the instant a relapse, however slight, occurs

An Industry, not a Charitable Concern

There remains, then, for consideration the employment of a consumptive as an employee on one of the many egg farms which are scattered all over the country These, it must be remembered, are run, as all businesses are run, for profit Any given farm can "carry" only a certain number of employees, and there is no room for a man whose labour is not a source of profit to the employer or company, as the case may be The hours of work are long, and these hours must be worked seven days a week It is a matter of considerable difficulty to induce the management of a poultry farm to allow one of the staff to work fewer hours per week than the others, and without the concession of this privilege the career of the consumptive as an employee on such a farm quickly comes to an end

In whatever trades inquiries are made the same problem presents itself Whether in an out door employment or an indoor one in a factory it is the pace that kills the consumptive, or, in other words, the competition with the healthy worker A permanently damaged man cannot keep pace with the healthy competitor, and this holds good whether the work be indoors or out Consumptives only keep well in an environment in which great attention is paid to certain factors—working hours regulated to their strength, absence of competition with healthy workers, an abundant dietary, and ample opportunity to recuperate when a slight relapse occurs, and lastly, but by no means least, ever ready help at hand should adverse circumstances be encountered

The most important question when industries suitable for consumptives are under consideration is whether these essentials can be provided and at the same time the industry be made a business in the sense of not being purely a charitable concern It can be done, but it can only be done by the study of the particular industry, and with the help of a man who thoroughly understands not only the industry in question but also the physical and temperamental peculiarities of the consumptive patient

The Poultry Farm at the Papworth Colony

A brief account of the building up of the 40 acre poultry-farm at the Papworth Colony may assist others to build an even better one, and thus help in solving the problem of the employment of the consumptive In the first place, the labour of the healthy individual must not be called upon It is the fashion to start a colony with healthy labour, to prepare the way and create elaborate buildings for the reception of the industries, and, when these are complete, to draft the patients in for training Such a procedure cuts at the very root of successful business building All must realise that unless interest in the industry is aroused an enormous incentive to work is lost We wish the patient to realise that he is building up a business, not running an institution We find that to the consumptive no influence is more depressing or deadening than the absence of any chance of promotion and the attainment of a better position The joy of life must be conserved at all costs The difference between monotony of training in a fully equipped establishment and pride of helping in the development of a business is just the difference between being a unit in a training scheme pure and simple and an apprentice in a live business concern

We have endeavoured, therefore, and have so far succeeded, in employing only consumptive labour to build up and carry on our poultry farm, exactly as if it were a private commercial enterprise The men employed in this task look forward to permanent employment on the farm, or when this is impossible, to being started on a subsidiary farm under the wing of the central organisation Beyond this, however, we have learned that it is possible to pay these men a definite wage according to their working capacity, and to pay this wage out of the profits of the farm This is rather a remarkable outcome of our experience, for rarely is a pupil on a poultry farm paid anything for his labour The explanation is that in a commercial egg farm a profit had to be made and paid out in dividends to the owners or shareholders At the colony this profit is divided amongst the workers on the farm, and only by a specially arranged method of working can this be done Obviously, therefore while the commercial plant is placed at a disadvantage when it attempts to employ consumptive labour, when the Papworth Poultry Farm can be run by consumptives entirely for consumptives

How to Meet the Consumptive's Special Difficulties

One of the great difficulties in the way of a consumptive running a small business is the risk of a relapse at a critical time in the career of that business For instance all through the hatching season—especially if artificial methods are employed—a short spell of illness on the part of the owner may seriously prejudice, if it does not permanently injure, the future development of the concern For a consumptive to be shielded and carried over these periods of indisposition in such a way that his business may not suffer, he must have help quickly and cheaply When a consumptive is set up in business on his own account this can best be arranged by some method of affiliation with a business similar to his own from which he may obtain almost instant assistance A large poultry farm like that at Papworth is in a position to provide this help, and so confer an inestimable boon on the man in question For those who are permanently employed on the farm the work is so arranged that relays of workers can be set to do various jobs, to which their strength is equal In other words, a system of repetition work is introduced which economises labour in the long run, and more hands can be employed per acre than under any other system The profits are available for this extra labour, it is possible to pay good rates of remuneration, and general satisfaction is secured It is only by carrying on the enterprise on a large scale that this dilution of labour is possible, and it is certainly only by this method that the additional labour is profitable and available for outside help Indeed, in any scheme for the employment of the consumptive it must be borne in mind that the industry selected must be one which can take a satisfactory number per acre, and which allows of transference of labour to the area in which it may temporarily be required

For many reasons, then, these poultry farms must be more or less centralised Poultry farming is one of the trades that require a larger acreage than many others—for example, cabinet making An acre of workshop space can, of course, accommodate a far greater number of hands than can a poultry farm On the other hand, a poultry farm can carry many more hands than a general farm, moreover, it is possible to arrange the work on the repetition system more easily and to arrange the hours accordingly It has been demonstrated that a poultry farm built up, equipped, and run by consumptives for consumptives, can be made a paying concern; that it can be made capable of employing a large number of hands, and that this is done not by turning the profits into dividends but by paying them out in wages for the extra hands which could be dispensed with if normal labour were employed. This, it seems to us, is the proper method of attacking the great problem of the employment of consumptives. By attacking it on these lines it should no longer be necessary to court failure by applying to charitably disposed individuals to take into employment on their farms consumptives unable to give a full day's work or work every day in the week. A practical method of employing the consumptive has been evolved and a sound business has been provided for the purpose of employing consumptives and, most important of all, of working them at their own pace.

The question of industries for consumptives is one of pressing importance. The waste of human material caused directly by the tubercle bacillus calls for immediate attention. The figures setting forth the loss to the nation are well known. By a careful study of each suitable industry on the lines set out above it will be possible, we believe, to save much of this waste, to economise labour, promote the welfare of the consumptive, and add to the protection of the country. What about the waste of human material? Has it been so salvaged and used to the best advantage that waste is eliminated or reduced to a minimum? In the past I think not. Of all our resources labour has received the least consideration, granting exceptions in isolated cases. After the cream of a man's efforts had been extracted he was thrown on the scrap-heap, and in many cases his best assets were lost, not only to himself, but to the State. We are at length waking up to the fact that this material can be usefully employed, but the conditions of employment under which it can be made profitable to the State are only now being worked out and the lines of future action indicated.

DEFECTS OF HEARING AND VISION IN THE SCHOOL CHILD.

In a lecture on medical inspection in schools given under the auspices of the London County Council at the London Day Training College, Southampton-row, London, W.C., on March 24th, Dr. F. S. Langmead emphasised the importance of the proper treatment of middle-ear disease in school children. Statistics showed that at the school-leaving age 8·9 per cent. of the children had less than three-quarters of the normal hearing and 6·4 per cent. less than half the normal. The chief causes of the disease were infections from the throat, tonsils, and adenoids, and, more remotely, the infectious diseases. A few, though not many, cases were due to tuberculosis. The condition was an extremely important and dangerous one, often followed by mastoid disease, meningitis, thrombosis, and septicæmia.

Dealing with vision, the lecturer said the figures for London showed that upwards of 20 per cent. of boys and 22 per cent. of girls had defective vision. In Staffordshire the statistics gave 26·7 per cent. boys and 33·1 per cent. girls. Among older children just about to leave school Dr. C. J. Thomas had found that 10 per cent. had very serious defects of the sight, while 13 per cent. had less serious defects. Generally speaking, the defects in school children occurred before the child entered school life, but eye defects were often school produced. If eye defects existed school life might make them worse, and even lead to total blindness or such further incapacity that education was wasted and the wage-earning capacity considerably diminished or lost. Errors of refraction were the most common, and of 755 children examined for eye defects 650, or 86 per cent., suffered from hypermetropia. This trouble not only caused the child great inconvenience, but might give rise also to headache, vomiting, nausea, want of appetite, giddiness, and eventually end in a condition of neurasthenia. Even fits had been ascribed to eye-strain. Myopia was an even more serious condition, and of the 755 children examined 105, or 13·9 per cent., had myopia. While the only symptoms complained of might be indistinct vision, secondary destructive changes might take place, detachment of the retina being one of the most severe. There seemed to be some individual predisposition to myopia, which was considerably increased if the eyes were used for near work. Probably, for this reason, it was more common in cities. Myopia was commoner in secondary schools, where finer work was done, than in primary, and among the professional classes. Some years ago Priestley Smith found that while there were 5 or 6 per cent. of myopes in elementary schools the percentage among teachers in the training colleges was no less than 20. The defect was commoner in girls, but that fact had not been explained. It was interesting to note that south of the river Thames the children came out best with respect to nutrition, teeth, and vision; north of the river nutrition and teeth were worse, but the vision was about the same. In the East of London the nutrition and teeth were the best of all, but the vision the worst, the explanation being probably the large alien population with a predisposition to myopia. Astigmatism was a third variety of refractive error giving rise to symptoms of eyestrain which might be even more severe than in hypermetropia. In the prevention of these defects much might be done by attention to proper lighting in schools and the provision of suitable desks.

In conclusion, Dr. Langmead called attention to an educational circular which permitted teachers to give to certain children "easy" instruction and "oral" instruction only. While these instructions did not seem to be fully known, he pointed out that unless they were intelligently acted upon there was danger of making a child blind by forcing him to attend school.

RESCISSION OF RATS ORDERS.

In view of the Rats and Mice (Destruction) Act, 1919, which came into force on Jan. 1st, the Food Controller has revoked the Rats Order, 1918 (amended in 1919). The Orders of the late Local Government Board—viz., the Local Authorities (Food Control) Orders (No. 5), 1918, and (No. 1), 1919, empowering local authorities to enforce and execute the Rats Orders, have consequently lapsed. The Ministry has thought it desirable, however, in order to avoid any possibility of confusion in the matter, that the Orders of the Local Government Board should be formally revoked, and copies of the rescinding Order have now been enclosed for the information of the local authority. A joint memorandum on the arrangements to be made by local authorities for the destruction of rats and sparrows was issued in April, 1917, jointly by the Local Government Board and the Board of Agriculture. The Rats and Mice (Destruction) Act, 1919, has also become obsolete and is formally withdrawn.

A USEFUL MEDICAL INDUCTION COIL.

The "physio" faradic wave apparatus is a medical induction coil which embodies many features of practical utility. The interrupter is of the type originally introduced by Tripier, and it can be regulated to vibrate any number of times between 60 and 3000 per minute. The secondary coil is composed of four separate windings, and, by means of a switch, the current induced in either of these can be utilised. Currents at different voltage can thus be obtained. These can be finely varied by sliding the secondary coil over the primary. The secondary coil is mounted on two parallel metal runners, thus allowing its easy movement to and fro, so that an even rhythmic variation of the strength of the induced current can be readily obtained. The coil is mounted in a neat case to which is fitted a leather strap by means of which it can be carried about and two dry cells for operating are packed in the base of the case. The well-made apparatus is manufactured by the Medical Supply Association, Gray's Inn-road, W.C.

SCHOOL ATTENDANCE: AN UNUSUAL CASE.

At Tavistock (Devon) recently a local builder was summoned for not sending his male child to school. It was stated that the reason of the non-attendance was that the father did not wish to allow the school medical officer to take a specimen of the child's hair for microscopical examination for ringworm spores. The medical officer had found these on a previous examination. For the defence it was contended that two medical practitioners had stated the boy was free from ringworm, and had written to that effect. Eventually the father stated that he would allow the school medical officer to examine the hair, and the case was then withdrawn.

POST-MORTEM EXAMINATIONS AND INQUESTS.

Dr. F. J. Waldo states in his latest report that in 85 per cent. of the inquests before him in 1918 he ordered post-mortem examinations to be held. This is a high proportion, but it is not in any way too high, and, indeed, there must be very few cases, an inquest being necessary, where a post-mortem examination can safely be dispensed with. A good example of the usefulness of a post-mortem examination was afforded at a recent inquest held by Mr. A. D. Cowburn, deputy coroner for North-East London. The deceased, a man, 65 years of age, was found lying dead on the pavement outside his house, having apparently thrown himself from an upstairs window. On the first appearances it was a case of suicide. Post-mortem examination, however, showed such extensive disease of the heart that the medical evidence ascribed death to this and not to the fall. The medical witness suggested, on a matter which, in the absence of any other evidence, was conjecture only, that the deceased had gone to the window and opened it on finding a sudden difficulty in breathing. That he should fall forward in dying, and overbalancing should fall out through the window, would be the natural consequence of this. The jury adopted the view put forward by the medical man, and returned a verdict of accidental death upon the information supplied by post-mortem examination.

The ex-Service men of Messrs. W. D. and H. O. Wills, of Bristol, have collected £500 for the Bristol Children's Hospital.

Considerations
ON
ABDOMINAL EMERGENCIES
IN WHICH OPERATIVE INTERFERENCE IS *EITHER CONTRA-INDICATED OR* RESTRICTED.

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Abdominal emergencies naturally fall into two categories, those requiring operative interference, and those in which such interference is not necessary. The operative interference may be judged an immediate necessity, or its postponement be considered advisable. The measures that should be adopted may be either radical or partial and palliative. It is well recognised that the operative part of emergency surgery ranks high in point of ease, and this very fact emphasises the paramount importance of judgment in this class of work; in other words, here the science of surgery outweighs the art. The surgeon's course of action depends on his survey of the case, and that should depend upon his diagnosis. It therefore follows that correct diagnosis is of prime importance, and the more exact and detailed it is the sounder must be the judgment and plan of action, the more complete will be the classification of the cases, and the greater the proportion not requiring operation. It is the easier, and at present more popular, course to operate, but this inevitably leads to a number of unnecessary abdominal operations. Nothing is more demoralising than to open an abdomen without discovering any pathological process, and no surgical progress can be expected if indiscriminate operating becomes the rule.

There are a few points which arise out of the above considerations, and which are worthy of note. A case left without operation, when against the opinion of others, is attended with much worry and a sense of greatly increased responsibility, and these are intensified by the latitude that such a course offers for difference of opinion. Further, should recovery occur, the diagnosis may remain uncertain.

Again, adequate stress must be laid upon the fact that, in a certain class of case, the surgeon's attitude will be controlled by the circumstance whether the patient is in hospital under his direct supervision or not. One may say, without hesitation, that the majority of cases are straightforward, and the certainty of the diagnosis is, for all practical purposes, unquestionable. There remains, however, a minority in which the diagnosis is difficult and uncertain, and in many of these the attitude of masterly inactivity is only justifiable if the patient be placed in such circumstances that an operation may be performed immediately if the necessity for it develops. Should these circumstances not be available, there may be no alternative to an exploratory operation.

In the following cases, from among the abdominal emergencies recently under the care of the writer in the Royal Victoria Infirmary, Newcastle-upon-Tyne, and in a private hospital, this last point must be kept prominently in remembrance.

Cases of Acute Appendicitis.

Case 1.—The patient, A. B., was a small, plump girl of 14. She was admitted to hospital 3/10/19 suffering from an acute attack of abdominal pain of 48 hours' duration. Only a week previously she had been discharged from a sanatorium, where she had been under treatment for pulmonary tuberculosis during the past 18 months. She gave a typical history of being seized with abdominal pain, which was at first felt all over the abdomen, and which later settled in the right iliac fossa. She vomited two or three times during the first day, but not afterwards. There was no trouble with micturition, and there had been no diarrhœa. She had had no previous attack.

On admission, 48 hours after the commencement of the attack, she was flushed, and her tongue was moist and thickly coated with brown fur. Her general condition appeared to be good, and there was an abundance of subcutaneous fat, apparently the result of her sanatorium treatment. Her chest showed marked bronchitis, as evidenced by coarse râles, frequent coughing, and the expectoration of copious muco-pus. Temperature 103·8° F., pulse 120. Locally there was marked tenderness and rigidity, limited to the right iliac fossa, and a feeling of an indefinite mass in the same region, as of adherent omentum. On account of the condition of the chest it was decided to wait. Should the condition of the patient, either general or local, become worse operation would be performed by rectal or local anæsthesia, but should it improve no operative measure would be undertaken. In four hours the temperature had fallen to 102° and the pulse to 112, and by the next morning the temperature was 98·8° and the pulse 108. Subsequently two evening rises to 100·6° and 100·4° occurred, but the general condition and the local signs steadily improved, and by the end of a week her attack had entirely subsided and she was discharged from hospital well, except for her chest.

Case 2.—The patient, C. D., a clerk of 20 years of age, was admitted to hospital 16/8/19 with an attack of abdominal pain of 24 hours' duration, vomiting, and temperature. The attack commenced on the evening before the night of admission, when she was seized with sudden pain across the abdomen rapidly becoming localised in the right iliac fossa. The pain was accompanied by a great deal of vomiting. Apart from one similar attack 12 months previously, when she was about a fortnight in bed, she had always been well. On examination she was a well-nourished, robust looking girl, her tongue was covered with a moist brown fur, and the breath somewhat fœtid. Temperature 99·8° F., pulse 86. Locally there was no distension of the abdomen. There was marked rigidity and tenderness, limited to the right iliac fossa, but no mass was felt, deep palpation being resisted. Diagnosis of acute appendicitis, with stricture, not perforated.

Operation.—The usual oblique incision was made in the right iliac fossa, and the abdomen opened. There was generalised tuberculous peritonitis, with numerous adhesions and miliary tubercles on all the gut examined. In addition there were many tuberculous mesenteric glands, most marked in the ileo-colic angle, and the wall of the cæcum showed extensive tuberculous disease. The appendix was found on the inner side of the cæcum; it was acutely inflamed and rigid, being like the small "erect penis," which has been described. There was an enlarged gland in its mesentery. It arose from the cæcum just at the site of reflection of the peritoneum on to the iliac fossa. The advisability of removing the appendix was by no means an easy problem. It could have been removed easily, but it was quite certain that part of the cæcal wall which would be employed in the process of inversion of the stump would be uncovered by peritoneum, and, further, the tuberculous condition of the cæcum would necessitate a very large inversion, if it proved feasible at all. Hence the probability of a fæcal fistula resulting, or, at the worst, a septic infection of the peritoneum in addition to the tuberculous one already present, was

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very likely event. The idea of removing the tuberculous cæcum with the appendix, either by a limited operation or a complete removal of the gut in the ileocolic and right colic distribution, was not entertained on account of the diffuse tuberculous peritonitis. Further, the appendix showed no external sign of gangrene or of impending perforation. In consequence, it was decided to leave the appendix in situ and await developments, since, if the inflammation terminated in gangrene and perforation, the condition of affairs would be very much the same as would almost certainly follow appendicectomy, and the fæcal fistula and septic infection, which would probably have developed as a result, would have arisen in the natural course of events. The abdomen was, therefore, closed in layers in the usual way, without any interference with the morbid condition present. The patient made an uninterrupted recovery, the wound healed per primam, and no further trouble has been experienced.

CASE 3.—The patient, E. F., a married woman aged 29, was admitted to hospital 21/9/19 with an attack of abdominal pain and vomiting of eight days' duration. She was five months pregnant. The attack was typical of appendicitis, the pain commencing in the region of the umbilicus and later settling in the right iliac fossa. Some vomiting at the onset had not persisted and the raised temperature had diminished. There had been marked constipation since the commencement of the attack. On examination the general condition of the patient was fairly good, though she presented the appearance to be expected after a week's illness. The tongue was thickly coated and the breath foul. Temperature 100° F., pulse 108. The abdomen presented a mid-line swelling corresponding to the five months' pregnant uterus. There was some rigidity and tenderness in the right iliac fossa, not marked, and the patient asserted that palpation was much less painful than it had been. No mass was felt. The diagnosis of acute appendicitis was accepted, but in view of the improvement in both general and local conditions it was decided to leave her alone. Her constipation was treated and she went home in a few days. The presence of pregnancy here was the chief deterrent to operation, especially as the appendicitis was clearing up. The danger that the pregnancy might predispose to a further attack was considered less than that of production of a miscarriage by operation after the acute attack had subsided, so that no action was taken.

CASE 4.—The patient, G. H., a male aged 30, was admitted to hospital 3/8/19 suffering from "diarrhœa," following an attack of abdominal pain 12 days previously. The history was again typical of appendicitis, the pain being general at first, and later settling down in the right iliac fossa. There was vomiting at first, and some difficulty and pain in micturition. The general condition had improved the last few days, and the abdominal pain lessened, but patient had developed what he described as diarrhœa the last two or three days. On investigation this proved to be the frequent passage of a small quantity of mucus, but there had been no incontinence.

On examination his general condition was good, his tongue moist and furred. Temperature 100·2° F., pulse 100. Locally there was slight tenderness and rigidity towards the inner part of the right iliac fossa, and on deep palpation a mass could be felt on the right side of the pelvis, resonant on percussion. Per rectum this same mass could be reached high up with the tip of the finger and readily demonstrated bimanually. The diagnosis was that of acute appendicitis with perforation and pelvic abscess pointing into the rectum at its upper part. The absence of any patulous condition of the anus and the height of the abscess contra-indicated its being opened by the bowel, as there was probably gut between it and the floor of the pelvis, and, seeing that it was pointing into the upper part of the rectum, there was no indication to approach it by the abdominal route. Left alone it discharged into the rectum in less than 24 hours, giving rise to offensive diarrhœa, with pus in the stools. The temperature and pulse at once fell to normal and continued so. He was discharged from hospital after a week.

CASE 5.—The patient, I. J., a married woman aged 33, was admitted to hospital 30/10/19 suffering from an attack of abdominal pain of 14 days' duration, with the development of a lump in the right iliac fossa. The history was that of an attack of acute appendicitis, with perforation, except that there had been no vomiting. A lump had gradually appeared in the right iliac fossa, and had steadily increased up to the time of her admission. The attack was not associated with any menstrual disturbance. She gave a history of a similar attack three months previously, with the development of a lump in the same way. It became quite large and then appeared to vary. When she had diarrhœa it became less. Finally it ceased to enlarge and gradually disappeared.

On examination her general condition was good; she was high-coloured and of more than average stoutness. Her tongue was moist and furred, her breath somewhat fœtid. Temperature 101° F., pulse 128. Locally a large mass, the size of a coconut, could be seen occupying the right iliac fossa. It was tender on pressure, but there was no rigidity over it. It was hard, smooth, and well defined, fixed to the right iliac fossa, and resonant on percussion. There was no flexion of the right thigh. The diagnosis made was that of acute appendicitis with perforation and abscess formation, the appendix occupying the subcæcal as opposed to the retro-cæcal position. The view taken of the previous attack was that an abscess had formed in the same situation and that it had burst into the cæcum, giving rise to the attacks of diarrhœa. Owing to the friability of the walls of the abscess and the danger attached to the separation of the adhesions, which are very dense by this time, coupled with the fact that in a proportion of the cases it is impossible to identify the appendix, it was decided to drain the abscess and do nothing more. This was accordingly done, the patient making a straightforward recovery. She was given instructions to return in six months to have the appendix removed, as it was almost certain that she would have recurrent attacks.

Cases Sent in as Acute Appendicitis.

CASE 6. *Tuberculous mesenteric glands.*—The patient, K. L., a boy aged 14, was admitted to hospital 4/10/19 as a case of appendicitis. The doctor was called to see him the night before, when he had "great pain over McBurney's point, vomiting, and some slight rigidity in that region. Temperature 99° F. He had, it appears, a similar attack some months ago." On admission he was not very robust, but though he did not look ill he had the facies associated with tuberculosis. Temperature and pulse were normal, and tongue clean. Locally the abdomen was not distended, and on palpation it had the "doughy" or "podgy" feel which is so characteristic of those in whom tuberculous mesenteric glands are found. Two separate small masses were readily felt, which were tender on pressure, but no rigidity was noted unless pressure were applied over the masses. The larger mass was situated in the right iliac fossa, the smaller rather above and to the left of the umbilicus. It was decided that the larger mass comprised tuberculous glands in the ileo-colic angle and the smaller a similar condition in the root of the mesentery. No operative measures were advised and the boy improved and went home in a few days, with instructions to carry out treatment appropriate to the condition.

CASE 7. *Tuberculous mesenteric glands.*—The patient, M. N., a boy aged 7, was admitted to hospital 8/10/19 as a case of acute appendicitis. For some days past he had complained of pain in the abdomen, with irregular vomiting and constipation. On admission he was a small, thin, weedy boy, with the typical tuberculous facies. He was very lethargic. Tongue was somewhat furred. Temperature 98° F., pulse 92. Locally his abdomen was not distended, and on palpation there was the same markedly "doughy" feeling which was present in the last case. An irregular nodular tender mass was felt nearer the mid-line and closer to the umbilicus than the usual appendix abscess. There was no rigidity except when the mass was pressed upon. Diagnosis was of tuberculous glands in the ileo-colic angle. No operation was advised and with general treatment his pain and constipation disappeared, and he improved greatly. An interesting feature of the case was the occurrence of two rises of temperature, 100.2° and 99.4°, on the third and twelfth days respectively, both of which fell to normal by a short lysis. This nine or ten days' cycle of temperature elevation is very common in cases of tuberculosis, and its occurrence has been especially emphasised by Mr. W. G. Richardson, surgeon to the Royal Victoria Infirmary, Newcastle-upon-Tyne. On his discharge from hospital the parents were given instructions as to his mode of life, fresh air, feeding, &c.

CASE 8. *B. coli infection of urinary tract.*—The patient, O. P., a married woman aged 28, was admitted to hospital 8/10/19 as a case of acute appendicitis, the history extending over a period of a week. On investigation there was nothing to suggest appendicitis except pain in the right side, shooting into the groin, and tenderness on pressure over that area. The attack had commenced a week previously with increased frequency of micturition, difficulty in commencing, and pain at the end of the act, referred particularly to the vulva. During the last three days the pain had extended into the right iliac fossa and right loin, so that, at the time of her admission, the pain appeared to commence at the anterior part of the loin and radiated into the groin, and it was associated with a desire to micturate. The increased frequency of micturition was still present and pain at the end of the act. There had been no vomiting since the onset of the attack, and she suffered from obstinate constipation.

On examination her general condition was good, and she was somewhat flushed. Temperature 100° F., pulse 102. Locally there was no distension of the abdomen. She was tender on pressure over the right kidney and along the ureter, but no rigidity was present and no mass was felt. There was no vaginal discharge. A provisional diagnosis of *B. coli* pyelitis and cystitis was made, and a catheter specimen of urine sent to the bacteriologist. X ray examination revealed no shadow suggestive of calculus. Aperients were administered and urinary antiseptics and diuretics given, and within three or four days the whole condition had completely cleared up. The bacteriological report confirmed the presence of *B. coli* in the urine in pure culture, with some pus cells.

CASE 9. *Retention of urine.*—The patient, Q. R., an unmarried female, aged 20, was sent to hospital as a case of acute appendicitis 28/10/19. On the night of 27th she went to bed feeling all right, slept all night, and was awakened at 6.30 A.M. with severe pain in the right hypogastrium, which she described as of a stabbing nature, and which continued with remissions until her admission on the afternoon of the 28th. She wanted to pass urine, but was unable to do so, none having been passed since the night of the 27th. There had been no vomiting, but she suffered from constipation. Menstruation had been regular, and had occurred four days before the onset of the attack. She gave a history of a similar attack two months previously, with retention of urine, which had had to be relieved by catheter, and she was quite well after the administration of a purgative. This attack was preceded by a week of obstinate constipation.

On examination she looked pained and anxious. Tongue furred and moist, temperature 99° F., pulse 100. Locally, there was marked distension of the hypogastrium, and the distended bladder could be seen and felt extending to within 2 in. of the umbilicus. It was tender on pressure, and she complained more of pressure over the right side than the left. There was no rigidity of the belly wall. Per rectum nothing was felt, except the cervix uteri, which was normal in position and condition, thus excluding the possibility of a retroverted gravid uterus. The diagnosis of acute appendicitis was not entertained, and the bladder was emptied and an enema given with excellent result. She expressed herself as greatly relieved, the pain disappeared and her tenderness rapidly cleared up, and she was discharged from hospital quite well three days after her admission.

CASE 10. *Movable kidney with hydronephrosis.*—The patient, S. T., a married woman, aged 41, was sent into hospital 31/10/19 as an appendix abscess on account of a mass, situated on the right side of the abdomen, about the level of the umbilicus. She gave a history of occasional attacks of pain in the right loin, which did not come on suddenly and which were never very severe, though the degree of severity increased for some time after the onset. These attacks of pain were associated with increased frequency of micturition, but there was no vomiting. When the attacks passed off she noticed the passage of an increased quantity of urine. She said the attack for which she had been sent to hospital was similar to these, and was still in progress.

On examination she was thin, but did not look ill. Temperature 98.8° F., pulse 80. Locally the abdomen was rather of the scaphoid variety, and examination was easy. There was no rigidity of the belly wall, and a mass was readily felt on the right side, above the level of the ordinary appendix abscess, on a line opposite the umbilicus. It presented all the physical signs of a kidney, being somewhat larger than normal, and having instead of a depression in the region of the hilum, a tense, more or less spherical swelling, the kidney tissue encircling it on its upper, outer, and lower parts in a crescentic manner. X ray examination revealed no shadow suggestive of calculus. The diagnosis made was "movable kidney with obstruction to the outlet of urine from the pelvis and consequent hydronephrosis." She was given aperients for her constipation and with rest in bed the hydronephrosis disappeared accompanied by the passage of an increased quantity of urine. The kidney remained as before, but the swelling in the region of the pelvis had gone. She was ordered a belt in preference to operative treatment.

CASE 11. *Pneumococcal peritonitis.*—The patient, U. V., a girl 9 years of age, was sent to hospital 2/10/19 as a case of acute appendicitis with general peritonitis. She was admitted on the fifth day of her illness, and the following irregular story was given by the parents. She complained at first of headache and was feverish and ill on the Sunday and Monday. On the Tuesday she felt able to go to school, but had to return home in the afternoon. On the Wednesday, for the first time, she complained of pain in the abdomen, apparently generalised and accompanied by diarrhœa. The abdominal pain rapidly became worse, and vomiting began and continued, the diarrhœa passing off.

On admission, she was crying out continuously with the pain in her abdomen, and she lay huddled up in bed, with the thighs flexed on the abdomen. She looked extremely ill, with hollow eyes and sunken cheeks, slight cyanosis, some embarrassment of the respirations, lips dry and cracked, and tongue coated with a brownish fur and dry, while there were sordes on the teeth. Temperature 103.8° F., pulse 124, varying. Capillary circulation very bad. The abdomen was examined with considerable difficulty, on account of the pain it gave her to lie on her back and straighten the legs at all. There was general distension, and rigidity and tenderness were very marked, and of equal degree all over the abdomen. There were no masses to be felt and no localising signs. Free fluid was not demonstrated. As in the case of the hands, the capillary circulation of the belly wall was very bad. No evidence of pneumonia was elicited. A diagnosis of pneumococcal peritonitis was made, the points in favour being the irregular history, the high temperature, the early diarrhœa, the rapid development of peritonitis, without the history of rupture of an appendix, and the sex and age of the patient. No interference was advocated, though this, on account of her general condition, would still have been the case had the diagnosis of acute appendicitis been confirmed. In spite of hot poultices, sitting posture, and rectal saline, she died on the fourth day, and post mortem and bacteriological examination the diagnosis of pneumococcal peritonitis, without pneumonia, was verified.

CASE 12. *Gonococcal peritonitis.*—The patient, W. X., 25 years old, was sent to hospital 8/9/19 as a case of acute appendicitis. The diagnosis was based on the presence of acute tenderness and some rigidity in both iliac fossæ of four days' duration. It commenced with increased frequency and smarting pain during micturition, and a heavy bearing-down sensation. Patient also complained of continuous pain in both iliac fossæ extending up towards the sides. There had been no vomiting with the attacks. Bowels constipated. Menstruation had always been regular, but her last period had continued a little longer and the discharge had been a little more profuse than usual.

On examination she looked feverish and ill. Her tongue was furred and moist, breath not fœtid. Temperature 100·8° F., pulse 88. Locally there was no distension of the abdomen, but she was extremely tender in both iliac fossæ and over the pelvis, and there was some, though not excessive, rigidity in the same regions. No mass could be felt, and there was no free fluid demonstrable. There was a purulent vaginal discharge present. Per vaginam there was marked tenderness in the fornices, but no mass was to be felt. A diagnosis of gonococcal peritonitis was made, and no operative interference advised. A swab of the vaginal discharge and a catheter specimen of urine were sent for bacteriological examination. The vaginal discharge contained diplococci indistinguishable from gonococci, and the urine showed the presence of *B. coli*, but contained no pus. With poultices and general treatment the patient ultimately made an excellent recovery, the temperature rising to 104° on the sixth day and becoming normal on the eleventh. Subsequently there was no further trouble.

Cases of Intestinal Obstruction.

CASE 13. *Strangulated umbilical hernia, with diabetes.*—The patient, Y. Z., a widow 51 years of age, was admitted to hospital 4/9/19 suffering from a strangulated umbilical hernia of two days' duration. She had had an umbilical hernia for many years, which had steadily increased in size and which had been the cause of repeated attacks of griping abdominal pain and vomiting. The last attack had been very severe, the pain being continuous, with exacerbations, the vomiting excessive, gradually becoming more and more offensive as time went on, and there had been complete arrest of flatus from the onset up to the time of admission. A few hours before coming to hospital she thought the pain had become less severe and the vomiting less frequent.

On examination she was a very stout woman, weighing about 16 st., somewhat cyanosed, with marked respiratory embarrassment and wheezing breathing, and she looked hollow-eyed and ill. Her breath was offensive and tongue thickly coated. Temperature 97·8° F.; pulse 92, soft, and of poor volume. The urine contained sugar. A large umbilical hernia, soft and free from tenderness for the most part, was present, but the upper portion, the size of an orange, was hard, tense, and tender. On account of the patient's general condition, the diabetes, the poor quality of the pulse, the bad chest, and the excessive fat, operative interference was not advisable, the chief deterrent being the glycosuria. The amelioration of the symptoms, pain and vomiting, might be regarded equally well as evidence of gangrene of the strangulated gut or relief to the obstruction, and an enema was administered with a view to finding out whether the gut was completely obstructed or not. The result of the enema was a little hard scybala and a small quantity of flatus. The latter was interpreted as indicating only a partial gut obstruction, and thus her best chance appeared to be the administration of further enemata, sodium bicarbonate being given per rectum for the diabetes. This treatment proved successful, and she made a straightforward recovery, leaving hospital before the end of a week.

CASE 14. *Double congenital cystic kidneys—uræmia, with obstructive symptoms.*—The patient, B. A., a married woman aged 49, was sent to hospital 21/8/19 under the care of Mr. Richardson as a case of chronic intestinal obstruction with a mass on the left side of the abdomen. The history extended over a period of nine weeks, during the greater part of which she had been bedfast and had suffered from severe and constant headache. She had lost a considerable amount of flesh and latterly complained of persistent thirst. For the week previous to admission she had had a great deal of pain in the left side of the abdomen, and her bowels had not been moved during this time, aperients failing to give her relief. There had been no arrest of flatus. A large mass had been discovered emerging from under cover of the left costal margin. During the last two days the headache had become much worse and the patient now complained of much pain in the left hip with loss of power in the leg.

On examination she was a fairly well-nourished woman, but looked quite ill. Tongue rather dry and furred. Temperature 100·4° F., pulse 112. Urine contained no albumin. Locally there was no general distension of the abdomen and no visible peristalsis. A mass could be seen projecting from under the left costal margin and extending towards the umbilicus. This mass presented all the physical signs of a kidney swelling, and it was distinctly nodular on the surface, the colon occupying its anterior and mesial aspects. On examining the right flank the corresponding kidney could also be felt, somewhat enlarged, but much less so than the left. X ray examination revealed no shadow suggestive of calculus. The diagnosis made was, therefore, congenital cystic disease of both kidneys, with uræmia, the manifestations of the latter condition being the headache, thirst, and loss of flesh, and the not uncommon simulation of intestinal obstruction. It is scarcely necessary to say that operative interference was not advocated, enemata and aperients leading to the disappearance of the obstructive symptoms and light diet and abundance of liquids producing a marked amelioration of the uræmic manifestations. She left hospital at the end of a fortnight considerably improved.

Other Types of Case.

CASE 15. *Leaking duodenal ulcer.*—The patient, D. C., a man aged 58, was admitted to hospital 30/10/19 because of an attack of acute abdominal pain. The history was that 36 hours before admission, when walking outside on his way to work, he was suddenly seized with an extremely severe pain in the upper abdomen, the worst he had ever had in his life. It completely crippled him, and he had to be helped home. He did not vomit at the time of onset, but since then he had vomited everything he had taken. For the past few months he had been much troubled with indigestion, pain coming on regularly about half an hour after meals. With it there had been no vomiting, but a good deal of "belching." There had been no previous similar attack.

On admission his general condition was not good. He had obvious trouble with his chest, emphysema and bronchitis, and he looked ill. Temperature 96·8° F., pulse 100, of very poor quality. There was a trace of sugar in his urine. Locally there was no distension of the abdomen. There was very marked rigidity and tenderness in the upper half, especially on the right side, where the rigidity was boardlike. He was tender in the lower half of the abdomen also, but rigidity was much less pronounced. There was no evidence of free fluid or gas. The diagnosis made was a ruptured duodenal ulcer, with a small leak, which, though affecting the general peritoneal cavity at the beginning, was at the time of admission shut off, as evidenced by the distribution of the rigidity and the absence of free fluid or gas. It was decided to leave him alone, and if a localised abscess formed to deal with it later. If the diagnosis of a limited leak were wrong, then the time since the rupture, coupled with his bad general condition, supported the non-operative treatment, and his best chance was to be left alone. The sugar in his urine was an additional reason against operation. He was propped up in bed, poultices were applied to his abdomen, and saline was administered per rectum. Sedatives were ordered only to be given if he complained much of pain. His abdominal condition slowly cleared up without abscess formation, and his chief trouble in hospital was his chest. His pulse was irregular at times, and he had much breathlessness, with bronchitis and muco-purulent expectoration. His pleura was watched for empyema, but none developed. After a somewhat slow convalescence he was discharged from hospital greatly improved.

CASE 16. *Rupture of kidney by a kick.*—The patient, F. E., a man of 20 years of age, was admitted to hospital 31/10/19 as a case of ruptured kidney. The history was that three days previously he had been kicked in the right side by a horse. Since that time he had been confined to bed, had suffered a good deal of pain, and had passed much blood in the urine. The last urine he had passed was thick and brownish. Since the injury there had been no vomiting, and his bowels had been regular and motions normal.

On examination he was a healthy-looking youth, with no evident anæmia. Temperature 99·6° F., pulse 84. Locally he complained of a dull aching pain in the right loin, and there was considerable tenderness on deep palpation over the right kidney. There was no rigidity till deep pressure caused him pain. No distinct mass was made out, but bimanually there was the feeling of a thickening in the flank, suggestive of a perirenal hæmorrhage. There was nothing abnormal in the rest of the abdomen. A specimen of urine obtained showed obvious blood, but no clot was present. No operative interference was entertained, the pulse being watched for evidence of hæmorrhage. The patient made an uninterrupted recovery, the blood in the urine varying a little but gradually clearing up, and no increase of swelling appearing in the kidney region suggestive of extravasation of urine. He had one attack of typical renal colic associated with the passage of a minute clot.

The following cases are of interest in that, though they are of the same class as those in which no radical operation was advocated, some special feature necessitated a change of attitude and course.

CASE 17. *Acute appendicitis with perforation and abscess, and tuberculous cæcum and glands.*—The patient, H. G., a boy aged 7, was admitted to hospital 25/5/19 as a case of acute appendicitis with abscess. The history was of two days' duration, typical of appendicitis. On the first day he had a good deal of pain referred across the abdomen about the umbilicus, with vomiting. On the second day the pain was much better, but on the third morning, a few hours before admission, it reappeared with increased severity in the right iliac fossa. There was no history of any previous attack; indeed, he had been exceptionally healthy and had lived a very active, open-air life.

On examination he was a thin, tuberculous-looking boy, and appeared to be quite ill. His tongue was thickly coated with brown fur, and his breath was offensive. Temperature 100·4° F., pulse 106. Locally he had a definite, localised, tender mass in the right iliac fossa, with some rigidity over it. It was resonant on percussion. There was no rigidity or tenderness of the rest of the abdomen. A diagnosis of subcæcal appendix abscess was made, and operation proceeded with. On opening the abdomen there was a considerable quantity of free, clear fluid, suggestive of tubercle. The mass was formed chiefly of omentum, enclosing an acutely inflamed and perforated appendix, and a small quantity of pus. The appendix was rather conical in form, about the thickness of a thumb-end at its base. It contained two large concretions and was perforated just at its attachment to the cæcum. The cæcum presented a plaque of thickening in its wall suggestive of tubercle, but there were no tubercles on its peritoneal surface. There were numerous tuberculous glands in the ileo-colic angle and in the mesentery. There was no choice but to remove the appendix. A clamp was put on at its base, but it cut completely through, detaching the appendix completely from the cæcum. It was removed. Considerable difficulty was experienced in dealing with the hole left in the cæcal wall, on account of the thickness and rigidity of the latter, and also as it was situated at the line of reflection of the peritoneum on to the iliac fossa. It was necessary to mobilise the cæcum somewhat and to take large bites of its wall in order to get a satisfactory invagination, and this suture was reinforced by adjacent tags of fat and the omentum on account of the very real fear of a tuberculous fæcal fistula developing. A drainage-tube was left in and the belly wall was sutured in layers. The boy, fortunately, made an uninterrupted recovery. In this case the site of the perforation and the presence of tuberculosis were almost certain to result in a fæcal fistula if no radical operation had been performed, and the operation gave the only hope of avoiding this most serious complication. Sepsis had already been added to the tuberculous infection, and the operation was certainly of value in helping to combat it.

CASE 18. *Acute appendix abscess, with tuberculous mesenteric glands.*—The patient, J. L., a boy of 12, was admitted to hospital 5/11/19 as a case of appendicitis of four days' duration. He gave a typical history of appendicitis, with pain first across the abdomen and later in the right iliac fossa, vomiting at the onset of the attack, and then elevation of temperature. He had had some difficulty with micturition and pain during the act during the last two days. He had had no previous similar attack. He had been treated for lupus since being quite a small boy, and was still attending the infirmary for treatment.

On examination his face was almost completely bandaged up, and he had widespread lupus. His tongue was furred and dirty, and his breath offensive. Temperature 98·8° F., pulse 128. Locally there was a large mass in the right iliac fossa, extending down into the pelvis, and resonant on percussion. He was rigid and tender over the mass, but the rest of the abdomen had the markedly "doughy" feeling typical of tuberculosis. Diagnosis made was appendix abscess, but the presence of tuberculous mesenteric glands was thought very probable. On opening the abdomen a large pelvic appendix abscess was found, and in addition extensive tuberculous mesenteric glands were present, especially large in the ileo-colic angle. On evacuating the appendix abscess a free stercolith was removed, and on inspecting its wall the appendix was seen to be acutely inflamed and presenting a large perforation at the site of a marked kink. It was tightly bound down and could not be mobilised, but, as it was certain to lead to further attacks if the perforation healed, it was removed base first, the mucous membrane being pealed out of the peritoneal and muscular coats. The inversion of the stump was not difficult and was satisfactorily accomplished. The abscess was drained. The patient made a straightforward recovery.

CASE 19. *Acute appendicitis, with pregnancy of five months' duration.*—The patient, L. K., a married woman of 28 years of age, was admitted to hospital 17/11/19 suffering from an attack of acute appendicitis. The history given was that 12 hours before admission she was seized with severe pain across the abdomen and in the right iliac fossa associated with vomiting. She had had one previous attack, which was less severe than the present one. She was five months' pregnant, and her pain had no resemblance to menstrual or labour pain, and there was no vaginal hæmorrhage with the attack.

On examination she looked ill, had a somewhat sunken-eyed and anxious expression, sordes on the teeth, and a very dirty brown-furred dry tongue, with fœtid breath. Temperature 99·8° F., pulse 120. Locally the abdomen presented a large mid-line swelling in its lower part, which looked and felt like a five months' pregnancy. She was acutely tender and rigid in the right iliac fossa, but no mass was to be felt. On account of the general and local condition of the patient and the shortness of the history, an acute appendicitis with gangrene was diagnosed and immediate operation advised. Operation revealed a much more advanced condition than the history suggested, and there was a large quantity of free milky fluid present with an acutely-inflamed, non-perforated appendix. The appendix was removed in the usual way, and the stump invaginated and the abdomen closed completely, in spite of the amount of milky fluid, in the hope that the peritoneum might be able to deal with the infection.

On examination of the appendix the mucous membrane was gangrenous, but there was no perforation, the infection having taken place through its wall. In another 24 hours it would have been completely gangrenous. The attack had, no doubt, been in progress before the onset of symptoms, and these latter only represented the period from the commencement of obstruction of the lumen. The condition did not clear up in the manner hoped for, and on the third day pus escaped between two of the stitches in considerable quantity, coming from a considerable depth. The subsequent course was similar to that of an ordinary appendix abscess and she was discharged from hospital quite well, no trouble having arisen in connexion with the pregnancy.

CASE 20. *Late appendix abscess, appendix entirely sloughed off from cæcum.*—The patient, N. M., a man of 54 years of age, was admitted to hospital 17/11/19 with an appendix abscess extending into the pelvis. The history was typical and the duration eight days. His general condition was fairly good. Temperature 99·6° F., pulse 80. Operation took place nine days from the onset. The abdominal wall was markedly œdematous and the muscle layers matted together with inflammatory exudate. The peritoneum was incised and an abscess cavity was opened into containing typical *B. coli* pus. On evacuating this the cavity was seen to be between the omentum and the belly wall. A finger was introduced, and it passed readily into a second deeper abscess cavity; this was opened up and evacuated and a free stercolith removed. The cavity extended well down into the pelvis. On examining its wall a small hole was seen where the appendix had completely sloughed from the cæcum, and the open mouth of the appendix base could be distinctly seen. It was evident that the usual procedure of simply draining these abscesses of long duration was contra-indicated, and it was necessary to remove the appendix. The dense nature of the adhesions all around and the friability of the whole abscess wall prevented any mobilisation of the appendix, and it was accordingly removed base first, its mucous coat being shelled out of its peritoneal and muscular coats. The hole in the cæcum was sutured with through-and-through catgut and invaginated with silk, very large bites of the cæcal wall being necessary to prevent the silk from cutting through. The cavity was drained. The patient made an uninterrupted recovery.

REMARKS.

The following are a few of the points which the above cases would appear to indicate, which, though by no means new, are worthy of recapitulation :—

1. In this class of work the ease of the average operations is prone to lead to carelessness in making a diagnosis, and so result in inferior judgment.

2. No hard-and-fast rules can be made; general principles ought to be laid down and followed, and special features of individual cases must be taken into consideration before a final decision as to treatment can be adopted.

3. The accepted contra-indications to operative interference still hold good. They are general and local, the general comprising heart, lung, and kidney disease (phthisis, chronic emphysema and bronchitis, uræmia, and, in the absence of organic disease of the heart, the rapid feeble pulse, cyanosis, cold blue hands, and bad capillary circulation associated with failure of the circulatory apparatus), diabetes, and so on. Examples of the local contra-indications are found in the presence of tuberculous peritonitis, where complications such as the possible addition of sepsis or the development of a fæcal fistula are such serious events. Also the presence of pregnancy deserves special consideration. In such cases judgment must depend on the relative seriousness of the condition already present and that recently superadded, and only where the latter is regarded as the more important must the former be ignored.

4. The chief objects of operation everywhere in the body are still to deal with hæmorrhage, sepsis, mechanical obstacles, or to remove a focus of disease (Rutherford Morison), or, in the case of injuries to the viscera, to deal with the lesion and remove extravasations of the specific secretions or excretions. Where these objects cannot be attained it is usually not wise to operate. A good example of this is seen in pneumococcal or gonococcal peritonitis, where until the infection, a general one, is sufficiently localised by Nature's efforts as to result in an abscess operative interference can only do harm.

5. In the cases of mistaken diagnosis, though at times differentiation is impossible, the error commonly arises from imperfect investigation in relation either to the history or the examination of the patient. This is well exemplified in appendix cases, where sufficient attention is not paid to the typical sequence of (1) pain, (2) vomiting, and (3) a rise of temperature, which is credited to Murphy, but which has been taught here for 25 years.

6. All surgical emergencies should be treated in a properly equipped hospital and every patient with a more than ordinary abdominal illness should be sent to such a hospital *at once* for observation and, if necessary, operation.

THE INCIDENCE OF
NOSE, THROAT, AND EAR DISEASE AMONG AVIATION CANDIDATES.

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THE statistics on which this contribution is based have been obtained from the records of examinations held both at the Aviation Candidates Medical Board, Hampstead (Tables A and B), and at the various reception depôts of the Royal Air Force in the United Kingdom (Tables C and D). By the term aviation candidate is meant any adult who presents himself for medical examination with a view to becoming a pilot or observer.

The great majority of the candidates were between the ages of 18 and 23, and those obviously unfit were eliminated by a preliminary medical examination conducted at one of the reception depôts in the various areas of the United Kingdom. Those who passed this examination were sent to the Aviation Candidates Medical Board, Hampstead, and subjected to a more searching examination. Most of the candidates belonged either to respectable working families or to the middle classes—e.g., artisans, clerks, school teachers, engineers. There was a fair sprinkling of better class and public school youths, but neither the aristocracy nor the slums contributed to a marked extent.

Among those also examined at the Medical Board, Hampstead, were officers and other ranks seeking transfer from their units to the R.A.F. Many cadets likewise presented themselves, but it may be assumed that all had had a preliminary examination similar in severity to that conducted at the reception depôts. A certain number of the candidates had two or more defects and are therefore included under two or more categories in Table A.

Standards Required.

1. *Dental treatment.*—This was advised when candidates had two or more carious teeth or stumps. The worst cases were temporarily deferred until satisfactory treatment had been adopted. The fact that 31 per cent. of the candidates seen at Hampstead needed treatment speaks for itself.

2. *Tonsils and adenoids.*—Operative treatment was required when disease or hypertrophy was present with accompanying symptoms or signs.

3. *Deflected septum.*—In recommending submucous resection it was kept in mind that symptoms apparently trifling in importance on the ground tend to become considerably aggravated in the air.

4. *Chronic suppurative otitis media*, unilateral or bilateral, also the radical mastoid operation and dry perforation of the drum, were all causes for rejection. A healed antrotomy with satisfactory hearing and a sound membrana tympani was not included as a prohibitory cause.

5. *Hearing defects.*—(Candidates rejected under Section 4 are not included in this section.) The standard of hearing adopted was that a forced whisper should be heard at a distance of 20 feet by either ear, with the other occluded. Chronic catarrh accounted for a great many of the failures. Cases where it was thought that treatment might bring the hearing up to standard were temporarily deferred and re-examined at a later date.

6. *Scarred drums.*—Were not considered a cause for rejection unless obviously liable to break down under alterations of atmospheric pressure. The fact that pain, especially on descent, was a likely symptom was duly noted.

7. *No defects.*—Under this heading are included those in whom none of the preceding defects were found. It must not be understood, however, that much rarer conditions such as cleft palate, or slight abnormalities causing no symptoms, were not occasionally found.

The following two tables (A and B) deal with candidates examined at the Medical Board, Hampstead. Table A deals with the commonest defects discovered among 5000 presumably A 1 aviation candidates. Attention must again be drawn to the fact that many of these were included in two or more of the above headings. It will also be noted that the percentage results for chronic suppurative otitis media and hearing defects agree very closely in the two tables. These results are approximate only and are not worked out to the nearest decimal.

TABLE A.—*Analysis of Nose, Throat, and Ear Defects of 5000 Aviation Candidates, presumably A I Men, Examined at the Aviation Candidates Medical Board, Hampstead.*

Treatment required and defects	No	Per cent		Treatment required and defects	No	Per cent	
Dental treatment	1548	31		*Hearing defects*, unilateral	11	0 25	0 61
Removal of tonsils	219	4 5	7 9	Ditto bilateral	18	0 36	
Removal of adenoids	56	1 1		*Has had mastoid operation*	*4	0 08	
Removal of tonsils and adenoids	115	2 3		Scars, unilateral	143	3 0	4 2
Submucous resection	109	2 2		Do, bilateral	59	1 2	
Chronic sup otitis media, unilateral	72	1 4	1 66	No nose, throat, or ear defects	2745	55	
Ditto, bilateral	13	0 26					

* 1 simple, 3 radical

In studying Table B it should again be noted, as mentioned under "Standards required," that although many candidates rejected for chronic suppurative otitis media suffered, as might be expected, from defective hearing, they are not included under the heading of the latter group.

TABLE B.—*Incidence of Chronic Suppurative Otitis Media and Hearing Defects in 47,069 Aviation Candidates, presumably A 1 Men, Examined at the Medical Board, Hampstead*

No examined	Rejected for various reasons		No with chronic supp otitis media			No with defective hearing		
	No	Per cent	No	E	R	No	E	R
47,069	14 059	30	715	1 5	5	330	0 7	2 3

E, R = Total examined and total rejected percentages.

The last two tables (C and D) deal with statistics obtained at the various reception depôts of the United Kingdom. Many thousands were seen by the medical officers at these depôts, which served the double purpose of relieving the strain on the Hampstead Board, and reducing to a minimum the loss of time and money incurred on the part of obviously unfit provincial candidates in a fruitless journey to London. In Table C the term "aural defects" is used to include chronic suppurative otitis media and hearing defects, it is apparent that a certain number rejected under these headings would also suffer from other physical conditions prejudicial to success.

TABLE C.—*Percentage of Rejected Candidates at Reception Depôts*

Total percentage rejected for all reasons	37
Percentage of total number examined rejected for aural defects	1 4

The last table (D) is an analysis of the aural defects (chronic suppurative otitis media and hearing defects) of 1500 candidates rejected for various reasons at the reception depôts. The numbers are not large but it is interesting to compare the right, left, or bilateral incidence of the defects, especially in view of the large proportion of bilateral hearing defects.

TABLE D.—*Incidence of Chronic Suppurative Otitis Media and Hearing Defects in 1500 Candidates Rejected for Various Causes at Reception Depôts.*

Chronic suppurative otitis media			Hearing defects		
Right	Left	Bilateral	Right	Left	Bilateral
11	13	6	7	4	16
0 7%	0 86%	0 4%	0 46%	0 26%	1 06%
2%			1 8%		

Summary.

Although these tables contain many items which almost speak for themselves, it is not sufficient to regard each individual one as a separate entity. In view of the fact that so many youths from and in different parts of the country were examined, it is possible to form a good idea of the amount of aural disease prevalent among young men of the middle classes. A calculation based on these figures shows that aural disease appears seriously to affect 2·8 per cent. of this part of the population. Similarly the incidence of other diseases, though not considered in the present report, could be adequately estimated.

One obvious conclusion remains to be noted: that much remains to be done before the amount of nose, throat, and ear disease affecting the youth of this country can be said to have been brought down to a negligible factor or an irreducible minimum.

DELAYED ARSENICAL POISONING:

A REPORT ON FIFTY-EIGHT CASES FOLLOWING THE ADMINISTRATION OF "606" PREPARATIONS.

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DURING the past 18 months there have been numerous reports of cases of poisoning following the administration of "606" preparations. These reports have described only single, or at most a few, cases. We have had the opportunity of seeing a large number of such cases, and the purpose of this paper is to draw attention to their prevalence and the variety of symptoms which may occur. The series reported below were all seen in military hospitals, but during the last four months several additional cases have come under our observation in civil practice.

The idea that syphilis should be treated in its early stages by free administration of salvarsan or neo-salvarsan was supported by the results of this treatment, as shown in the rapid disappearance of symptoms, the freedom from relapses, and the negative reactions readily obtained to the Wassermann test. This led the army medical authorities to adopt the "intensive treatment"—i.e., doses of salvarsan and mercury, administered once a week for seven or eight weeks, followed by a further course a few months later, and, if the Wassermann test was subsequently positive, a third course. It was recommended that the doses of salvarsan should be small at first, until the degree of the patient's susceptibility to arsenic was found. One-grain doses of mercury were advised. Instructions were issued that a physical examination, including tests for albuminuria, should be made before and after each treatment. Medical officers were warned to watch carefully for signs of arsenical and mercurial poisoning. Once a patient was considered non-infective he was sent to his lines or barracks, and the treatment continued at the Venereal Disease Treatment Centre of his district. By this method a patient received efficient treatment with a minimum loss of time from his duties. The day after a treatment he was excused duty or given light duty, but by the third or fourth day he was usually at full duty again. This plan worked successfully until the autumn of 1917, when several deaths occurred of men who had received treatment in the preceding three months. This led to an immediate and thorough investigation by the army medical authorities in England, and it was found that nearly all fatal cases had been treated in one of five centres.

Investigation of these centres showed that instructions had not been carefully followed, that in some cases patients had received repeated doses after symptoms of arsenical poisoning appeared, and that a proper urinary and physical examination had been omitted before giving these treatments.

In January and February, 1918, Captain Smith observed several fatal cases at No. 14 Canadian General Hospital, and reported them at a meeting of the Eastbourne Military Medical Society. Lieutenant-Colonel Strathy took charge of the medical division of this hospital in March, 1918, and together they observed 8 fatal cases. Following on these, the remaining 50 cases of the series came under our observation. The military authorities transferred Colonel Strathy to No. 16 Canadian General Hospital in August, 1918, thus leaving Captain Smith to carry on this work at No. 14 Canadian General Hospital. Influenzal pneumonia caused the death of Captain Smith in October, 1918, and unfortunately most of his records were lost, so that some of the earlier cases can be only incompletely recorded.

It is regretted that, owing to Service conditions, we were unable to follow all cases as long as could be desired. The pressure of work in 1918 and 1919 made it impossible to investigate the cases as thoroughly as we would wish. Colonel Strathy was ordered back to Canada in June, 1919, leaving further observation of the cases to Captain Hannah. The assistance of Captain C. V. Bailey was obtained towards the end of the investigation to study the liver changes from the chemical aspect. It is hoped that he may be able to add further information about the cases in the near future. The delay in publishing this paper is partly due to the fact that the Salvarsan Committee of the Medical Research Committee, England, had all our clinical data from June to September, 1919, for the purpose of including them in their report on salvarsan poisoning.

Fifty-eight cases are here reported. Eight of these were fatal, being the first of the series to come under observation. The remaining 50 cases made a slow but otherwise satisfactory convalescence.

Symptomatology.

Eight cases were sudden in onset and extremely severe and died within a few days. The remaining patients varied in the degree of their severity, but the onset was more gradual, and all left the hospital almost fully recovered. Therefore we have divided the series as follows: I. Fatal cases; II. Non-fatal cases.

Group I. Fatal cases.—In these cases the greatest number of doses of salvarsan given was 11, the least 4. The greatest amount of salvarsan administered, where it was possible to obtain records, was 6·95 g., the least amount 2·2 g. The average time of onset of symptoms after the last dose was 41 days, the longest interval 48 days, the shortest 18 days. One patient was under 20 years of age, four between 20 and 30, and three between 30 and 40 years of age. The smallest number of days which elapsed between the onset of symptoms and death was 2, the greatest 11, the average 5 days. The symptoms in every case were similar. The jaundice of onset was rapidly followed by nausea, epigastric pain, stupor, hæmatemesis, delirium, and death. A typical case is here reported.

Pte. R., age 21, 18 months before admission had had a slight sore on his penis. He did not report it and was not treated at the time. He had had five attacks of gonorrhœa in the previous two years. While under treatment for gonorrhœa in November, 1917, his blood was tested and showed a positive Wassermann reaction. In December, 1917, and January, 1918, he was given seven doses (4·7 g.) of novarsenobillon and seven one-grain doses of intramuscular mercury. Following this he was on light duty, but lacked strength and energy. On March 2nd he felt nauseated and chilly. March 3rd he vomited several times. March 5th he noticed he was jaundiced and his vomiting persisted, so that he could not retain solid or liquid food. The vomit became black. He was so weak he could not sit up. March 6th he was admitted to hospital.

On admission, 11 A.M., he was rational, but drowsy. He vomited frequently. The vomitus was black, and looked like hæmolysed blood. There were no clots. The tongue was furred and the breath foul. His face was cyanosed. Breathing somewhat stertorous. Temperature 98·3° F.; pulse 99; respiration 32. Abdomen slightly distended. Liver palpable just below costal margin. Spleen appeared large on percussion, but was not palpable, probably on account of abdominal distension. Examination of heart and lungs negative. Gonococci present in urethral smear. Leucocyte count, 34,000 per c.mm. Differential count: Polymorphs, 80 per cent.; lymphocytes, 16 per cent.; large mononuclears, 4 per cent. Urine: amber colour, acid, specific gravity 1020, sugar absent, albumin present ++; microscopically, pus cells and red blood cells; no casts. During the day he vomited more than a quart of the black material and some bright red blood. His pulse became weaker, the cyanosis was more marked, but he remained conscious until a few minutes before death, which occurred at 9 P.M.

Death in all cases but one followed rapidly. Four of the patients were wildly delirious. In the case of the patient who lived for 11 days after admission drowsiness came on gradually and slowly deepened until death. In all cases tested the urine contained bile, and in nearly all cases albumin as well. The blood picture was not characteristic. The hæmoglobin and red cells were not much reduced. The leucocytes varied in number from 14,000 to 34,000 per c.mm., and the polymorphonuclear leucocytes from 50 per cent. to 80 per cent.

Group II. Non-fatal cases.—The greatest number of doses of salvarsan given was 14, the least 2. The records showing quantities of salvarsan administered were not always available. The average time of onset of symptoms was 45 days, the longest interval 180 days, the shortest 3 days. Three patients were under 20 years of age, 30 between 20 and 30 years, and 17 between 30 and 50. Thirty-nine of the patients were admitted for jaundice, 8 for dermatitis, 2 for nephritis, and 1 for general debility. Jaundice followed dermatitis in 1 patient, and 2 other cases of dermatitis were followed by peripheral neuritis. Coated tongue, poor appetite, epigastric distress, abdominal distension, headache, general malaise, and loss of weight were noted throughout the group. The blood pressure was recorded weekly in all cases. During the early stages the systolic pressure was frequently below normal. It was often normal and never over 140 mm. As the patient's condition improved the blood pressure returned to normal. A routine urinalysis was carried out every few days with the following results: albuminuria 28 cases, bile salts present 35 cases, increased urobilin and urobilinogen in 16 cases, leucin and tyrosin never found. The microscopical examinations did not show any change of interest. A Wassermann test was obtained in all cases before they left the hospital. All gave a negative reaction with two exceptions; these two remained strongly positive.

Jaundice.

This was the most prominent symptom noted throughout the series, being present in all of the fatal group and 39 of the non-fatal group. It appeared within ten days of the onset of toxic symptoms, and lasted on an average for four weeks. In one case the jaundice was noticeable at the time of the patient's transfer to Canada, five months after its first appearance. Itching of the skin was never present. A marked tendency to somnolence manifested itself, disappearing with the decrease in icterus. The liver was distinctly enlarged in a number of cases, slowly returning to normal size, but never very tender on palpation. The condition of atrophy of the liver in the early stages and following at a later stage on hypertrophy is discussed below under X ray examination. The appetite usually continued small for about two weeks. When this returned there still remained for some days, and in some cases for several weeks, diminished digestive power with a feeling of heaviness and distension in the epigastrium when food was taken.

In the worst cases of this type there was a period of several days in which the secretion of bile was low, evidenced by lack of jaundice, absence of bile in the urine, and clay-coloured stools. A marked feature of these cases was the slowness with which they returned to normal. The average duration of hospital treatment was from two to three months.

The following case is an example of the slow return of bile secretion and liver function:—

Pte. B., age 29, had received 2·3 g. of galyl in six doses and 8 gr. mercury in oil. Fifty days after his last treatment he developed headache, epigastric pain, jaundice, œdema of hands and face, and diarrhœa. Examination showed liver and spleen palpable, and large traces of albumin and bile in the urine. Stools showed bile pigment. The blood picture was normal. Blood pressure 90 diastolic, 140 systolic. He was put on a daily diet of milk 40 oz. and sugar 2 oz., with bicarbonate of soda gr. xlv. Water was given freely. A week later jaundice was deeper, the œdema had disappeared. There was little or no loss of weight, no vomiting or diarrhœa. The liver dullness had become less, the spleen was still palpable, and the stools were clay-coloured. A week later the jaundice was less, the liver dullness on percussion was markedly decreased. (At this stage we had not commenced examining the liver by X ray.) The albumin had disappeared from the urine, but there was still a faint trace of bile. The blood count remained normal. Later the jaundice entirely disappeared, but the stools remained clay-coloured and his digestive powers low. His liver was apparently much atrophied, but he was quite comfortable as long as he was kept on the low diet mentioned. Any increase of diet caused epigastric pain and discomfort. Apparently little or no bile was being formed in the much-damaged liver. Convalescence lasted over six months, but recovery was apparently complete.

Dermatitis.

Eight cases of dermatitis following salvarsan were admitted to No. 16 Canadian General Hospital between March and June, 1919. While dermatitis was the most prominent manifestation, gastric disturbances, congestion of the mucous membrane, loss of weight, and general weakness were also present. Liver changes, similar to those occurring in the jaundice cases, manifested themselves at some time during the illness. The average time for the appearance of this skin condition was usually within two weeks following the course of salvarsan.

It began as a patchy papulo-erythematous eruption, spreading until confluent and until the whole skin was a crimson colour and slightly infiltrated. A few days later desquamation commenced, lasting several weeks. The scales were large, thick, abundant, and without any exudation beneath them. As the exfoliation decreased the infiltration and brown pigmentation of the skin increased, especially over the abdomen and extremities. Four of the cases developed numerous superficial abscesses with elevated temperature extending over a period of three to five weeks. A peculiar condition of the toe and finger-nails was observed in these cases. They became pitted and thickened, followed by splitting and shedding of the nails, and eventually new ones replaced them. The hair of the scalp, axillæ, and pubes fell out, but was gradually growing again at the time the patients left the hospital. A typical case is described below:—

Driver S., aged 37 years, developed a sore on the penis Dec. 15th, 1918. Between 17/2/19 and 20/3/19 he was given five doses of neosalvarsan intravenously and 5 gr. of mercury intramuscularly. On the latter date an irritating red rash appeared on the neck and arms. He was given a further dose of neosalvarsan and mercury. The rash became more severe, and exfoliation followed a few days later. The urine showed albumin.

He was evacuated to England and admitted to No. 16 Canadian General Hospital on 10/4/19. On admission he complained of severe irritation of the skin and conjunctivæ. Exfoliation of the skin was very marked, the conjunctivæ were reddened, and his hair was falling out rapidly. Stomatitis was severe. He had no gastric symptoms. Temperature 102° F. Liver was palpable. Hæmoglobin 85 per cent. Red blood cells 5,800,000 per c.mm. White blood cells 17,000 per c.mm. Differential count showed a slight increase in the polymorphonuclear cells. Blood pressure diastolic 70, systolic 114. On 16/4/19 three large superficial abscesses were present; these were opened. On 25/4/19 liver and spleen were palpable. Skin showed slight brown pigmentation. No bile or albumin in urine. By 5/5/19 several more abscesses had developed. Liver and spleen still palpable. Urine showed no albumin or bile. After this he steadily improved.

Peripheral Neuritis.

In two cases of this group peripheral neuritis occurred. They were both admitted for "exfoliative dermatitis," and developed neuritic symptoms several weeks later.

Pte. P., aged 25 years, was admitted to No. 16 Canadian General Hospital on 16/4/19. Sore had developed on penis 27/12/18. He had received several doses of salvarsan and six injections of mercury. A papular eruption, followed by desquamation, appeared on his body after the fifth injection. Four months after treatment he began to complain of weakness and some numbness in the lower extremities. This condition grew worse. 26/6/19: Examination showed marked weakness of upper and lower extremities, with toe-drop and wrist-drop. Some decreased sensation in hands and feet. Deep reflexes absent. He was unable to feed or dress himself. Two months after the onset of neuritis he was invalided to Canada. At this time he had slightly improved. Deep reflexes were still absent. He was beginning to feed himself, but was unable to walk. Sensory changes had disappeared.

A Case of Arsenical Poisoning due to Fowler's Solution.

A condition very similar to poisoning following salvarsan was found in a patient suffering from arsenical poisoning after the administration of Fowler's solution for psoriasis.

Sgt. F., aged 35, admitted to hospital 24/2/19; had enjoyed good health previously, but had had psoriasis for 15 years. Five months previous to admission he commenced taking Fowler's solution, 5 minims three times a day, and except for short intervals had taken this dose until admission. A month previously he had noticed that the skin of his body and extremities was becoming dark. He had lost 40 lb. in weight, sleep was restless, and appetite very poor. Examination showed nigger brown pigmentation of the skin over all of the body except the head, hands, and feet, and most marked on abdomen, back, thighs, and perineum, with fine bran-like desquamation. Heart and lungs were normal. Blood pressure normal. Liver showed atrophy both on percussion and by X ray. The height of the liver shadow in the right parasternal line in over 50 normal patients was not less than 6 in., whereas in this patient it was 4¾ in. Spleen not enlarged. Urine showed no bile or albumin. He was rested for a month and given milk diet. 31/3/19: Gaining weight and strength. Appetite improved. No change in pigmentation. 7/4/19: Appetite good. Stools normal. 8/5/19: Feels quite well. Full diet. Liver almost normal size, 6¼ in. deep in parasternal line.

This patient, evidently very susceptible to arsenic, developed a chronic dermatitis and atrophied liver from the administration of only 15/100 gr. of arsenious acid daily. His symptoms referable to the liver were almost identical with those of patients who had received salvarsan or neo-salvarsan.

Additional Cases.

The month of August, 1919, brought many convalescent patients to England from the hospital centres in France for immediate transfer to Canada. At No. 16 Canadian General Hospital we observed 11 more cases of "606" poisoning which are not reported in the above series. Time did not permit us to investigate them thoroughly, but they readily grouped themselves according to their outstanding features, as follows: Jaundice, 7 cases; dermatitis, 3; general debility, 1.

Post-Mortem Findings.

As the post-mortem examinations showed very similar conditions in all cases, the autopsy report of Pte. R., whose case is described above, is given as typical;—

Autopsy, 14 hours after death. Body well developed and well nourished. Well-marked icterus of skin and conjunctivæ. Body fat is tinged with jaundice. No free fluid in the peritoneal cavity. Many hæmorrhagic spots, about the size of a sixpence, in the mesentery. Right pleura contained about 50 c.cm. of straw-coloured fluid. Few old adhesions at left apex. The pericardium was normal. Lungs crepitant throughout. Bloody frothy fluid flows from bronchi. Some hypostasis. Heart muscle pale, otherwise normal. Stomach filled with black, unclotted, hæmolysed blood. Mucosa showed considerable digestion, but no ulcers or bleeding points found. Duodenum and jejunum contained black blood similar to that found in stomach. Intestines otherwise normal in appearance. Œsophagus, suprarenals, and pancreas normal. Spleen slightly larger than normal, on section almost diffluent. Liver considerably smaller than normal, capsule wrinkled, on section pale, with nutmeg appearance, friability about normal. Gall-bladder contained 5 c.cm. of normal-looking bile. Kidneys larger than normal, on section very pale, stellate veins congested, cortex swollen, considerable amount of fat in pelves, capsule strips with difficulty. Meninges slightly congested. Brain appears normal.

Anatomical diagnosis: (1) Acute atrophy and degeneration of liver. (2) Slight chronic nephritis and acute cloudy swelling. (3) Mesenteric hæmorrhages. (4) Beginning myocardial degeneration.

Microscopic examinations showed marked damage of the parenchyma of liver and kidneys. The liver lobules were almost unrecognisable, due to the great reduction of liver cords, and where liver cords remained they were remarkably degenerated. The central vein of the lobule was seen supported by the fibrous reticulum. The lobule and Glisson's capsule were infiltrated with round and polymorphonuclear cells. Degeneration and desquamation of the epithelium of the higher tubules were found in the kidneys.

Just before submitting this paper for publication we had the opportunity of seeing an autopsy on a demobilised soldier who died following anti-syphilitic treatment. His history was very similar to the cases in our fatal group, except that he had received only 2 gr. of mercury but 5·85 g. of salvarsan. The liver on section had the appearance which is usually seen in acute yellow atrophy, the cut surface being of a yellowish-brown colour, with numerous elevated areas of a deep red.

Microscopically, degenerating liver cords were seen in the damaged liver lobules.

Ætiology.

Nearly all the observers of salvarsan poisoning have concluded that the benzol group in the salvarsan is the cause of the poisoning. With this we entirely disagree, as we believe that the cases are typical of delayed arsenical poisoning. It is well known that arsenic attacks the liver, stomach, skin, and nerves. These were the main organs of the body affected in the series we are reporting. The symptoms in the case of arsenical poisoning following the administration of Fowler's solution are almost identical with the cases following salvarsan.

It is apparent from the cases reported that age and syphilis are not causative factors. It occurred in all army ages, in all stages of syphilis, and in patients who had never had syphilis. The direct cause of the symptoms is poisoning of the liver, skin, stomach, and kidneys by arsenic. One patient had previously had a wound of the liver which possibly was a predisposing cause and led to a diagnosis of abscess of the liver. The abdomen was opened, which probably hastened death. One patient gave a history of an attack of jaundice five years previously. Three of the fatal cases had gonorrhœa at the time of death. In Dr. Wallace Wilson's fatal case, mentioned below, gonorrhœa was also present. One was alcoholic and had chronic nephritis. One had had nephritis six months previously, and one at autopsy showed a gummous mass as large as a tangerine under the diaphragm. It was composed of brownish material. It is not certain whether this was a pre-existing condition, or was due to the breaking down of the liver from arsenic. No particulars of previous history were available.

It is noticeable that all fatal cases but one occurred between November, 1917, and March, 1918. Routine urinary and physical examinations were then insisted upon before each administration of salvarsan and mercury in all venereal centres.

Preparations Employed.

None of the cases were treated with the original German preparations, but occasional reports of similar cases are published in the recent German literature. Nearly all the patients were treated with substitutes for neo-salvarsan. Some of the patients were given neo-kharsivan, some galyl, and some novarsenobillon. As there are no records obtainable as to which of these preparations was most commonly used, and as we are not able to find records in all cases of the preparations which the patients received, it is not thought that anything would be gained by giving data as to which preparation was given in our cases. The cause of the poisoning was apparently more a matter of injudicious dosage and lack of physical and urinary examination than of the particular preparation used.

The Salvarsan Committee of the Medical Research Committee has investigated the various preparations very thoroughly, and where fatalities have occurred it has tested capsules of the drug from the batch prepared at the same time. Its report will deal with this part of the problem much more thoroughly than we can attempt to do. Our impression is that it is the administration and not the preparation or composition of the drug which is at fault.

In all cases intramuscular injections of mercury were given at the same time as the arsenical treatment. A few of the patients showed slight symptoms of mercurial poisoning, but mercury is known to be an irritant of the kidneys and in excessive doses to cause degeneration of the tubular epithelium, and it seems not at all unlikely that for this reason it acted as a predisposing factor. If the kidneys were damaged by the mercury the elimination of the arsenic would be delayed. There is no evidence that mercury has a toxic action on the liver. Arsenic is stored principally by the liver and is also toxic to the kidneys. It is excreted by the kidneys and also largely by the skin.

We believe that the combination of "intensive treatment" by mercury and salvarsan probably favours the occurrence of arsenical poisoning more than when arsenic and mercury are administered in separate courses. Whether the therapeutic benefits of the simultaneous treatment outweighs these dangers we are not prepared to judge. Since returning to civil practice we have noticed several cases of mild jaundice and slight atrophy of the liver. These are all that have occurred in some hundreds of cases where arsenic and mercury have been administered in separate courses. Dr. Wallace Wilson, of Vancouver, has furnished us with the history of a patient who died in Vancouver three months after a combined course of six novarsenobillon and six mercurial treatments.

Fatalities would probably be avoided in all cases if the patient were examined carefully before and after the treatment, and dermatitis, albuminuria, and bile in the urine excluded. Where possible the liver should be screened at the end of each course, as atrophy can sometimes be diagnosed by this method before any other symptoms appear. The following case illustrates how atrophy of the liver may sometimes precede the jaundice.

Pte. L., age 42, was admitted to hospital 20/2/19, convalescent after influenza. He gave a history of seven doses of salvarsan and seven doses of intramuscular mercury in December and January, so his liver was examined by X ray screen 24/2/19. The liver was seen to be almost entirely to the right of the middle line, the angle formed by the junction of the vertebral and liver shadows was acute, the upper surface of the liver was more dome-shaped than normal. Atrophy of the liver was diagnosed, and against the patient's wishes he was put on a much reduced diet. He did not see why this should be done, as except for slow convalescence from influenza he had no complaints. He felt better, and at his own request he was given two weeks' sick leave and discharged from hospital on 12/3/19. While on leave he ate freely for the first few days, then he lost his appetite, and on 26/3/19 he became jaundiced for the first time and returned to hospital. His liver showed marked atrophy. He was put on the reduced diet again, and by 30/5/19 his appetite had returned, his jaundice had disappeared, and the liver had almost regained its normal size.

Prognosis.

Where the onset is sudden with stupor and vomiting death supervenes in a few days. Where the onset is gradual and no symptoms follow within a month of salvarsan treatment the outlook is good but recovery slow. The appetite returns quickly, but the power of digestion is usually poor for some weeks. In some cases patients were unable to take ordinary diet without discomfort for two to three months. Being soldiers, suggestion may partly account for this. A not unusual feature of the early stage of recovery is the apparent absence or great reduction of bile formation. No bile is found in the urine, the stools are clay-coloured, and there is no jaundice.

Treatment.

As the nature of our first four cases was not understood no systematic treatment was tried. Purgatives were given. Vomiting was so severe that no food was retained. Morphia had to be given to control mania where it was present. Later it was thought that acidosis was a factor. Bicarbonate of soda was given but the cases were rapidly fatal.

In the milder cases the diet was much restricted as it was thought that the power of digestion was limited, and under these conditions toxic products might be formed from food products which could not be assimilated. Each patient was given 30 oz. of skimmed milk and 2 oz. of sugar daily. As they improved, 2 oz. of jam and a slice of bread were added. The diet was intentionally high in carbohydrates and low in fat to aid in combating acidosis. Tea and water given freely allayed the hunger to some extent. Gradually the diet was increased. Absolute rest in bed was ordered. Sodi. bicarb. drachms ii. in 24 hours were given. Except in the fatal cases vomiting ceased when a small diet was given. Loss of weight was slight.

Prophylactic Treatment.

After the cause of the jaundice outbreak was recognised as due to salvarsan treatment, the cases were carefully investigated by the army authorities and all intravenous treatment with salvarsan was discontinued for a few weeks. It was thought that infection might be the cause of the trouble. All the centres which had treated the cases were investigated and a common factor looked for. While the aseptic technique in some centres was found to be not perfect, in others there was no fault in technique. It was then found that the affected patients had not had a proper urinary or physical examination made before receiving repeated doses. The order was then repeated that an examination of urine must be made the day before each treatment and after each salvarsan treatment. Signs of arsenic dermatitis were to be looked for in all cases. After this routine had been rigidly enforced no fatal cases were seen by us.

From observing the patients closely it was found that moderate damage to the liver caused no appreciable symptoms, but when the damage became greater, loss of appetite and then jaundice appeared. If the diet was still free, the damage to the liver still progressing, severe symptoms developed rapidly, leading to death in a few days. If, however, the diet was kept at a minimum, severe symptoms did not follow. It would therefore appear that the severe symptoms of the fatal cases were due to the inability of the liver to handle the products of digestion carried to it, and death ensued from the poisoning of the body by these products. When patients had been only a few days on the low diet an increase in the symptoms, especially epigastric discomfort, was always produced by increased diet. The patients soon learned this themselves, and though at first inclined to take, surreptitiously, diet not ordered for them, they soon found that it caused them so much discomfort that they were satisfied to remain on the low diet ordered.

Examination of the Liver by X Rays.

One of the most interesting facts brought out by the observation of these patients was the changes in the appearance of the liver shadow as shown by X rays. Outlining the liver by percussion is of doubtful value, as it is impossible to be sure of its accuracy. Therefore, use was made of the X ray fluorescent screen in determining the size of the liver in the last 30 cases under observation. A large number of normal cases were examined in order to discover the normal location and outlines of the liver. All patients were examined standing. The level of the upper border of the liver was marked on the patient's skin, and then the lower border marked. Both markings were made at the end of an ordinary expiration. This revealed the fact that atrophy of the liver was common in the cases of arsenical poisoning, but was found in two other patients only. These two patients were both cases of so-called catarrhal jaundice of long standing. It was found that besides the decrease in the depth of the liver shadow atrophy showed itself by changes in the shape and position of the liver. The angle formed by the junction of the liver and vertebral shadows was frequently acute instead of a right angle as in normal cases. The liver tended to be displaced to the right and downwards, very little of the liver being to the left of the middle line of the body. The relaxed capsule permitted the upper surface of the liver to be drawn up into a more dome-shaped outline by the elastic traction of the lung, and the lower border of the liver approached the vertical more nearly than in the normal. In one case of atrophic cirrhosis, the liver being rigid, although atrophied, the change in the shape of the upper surface was not seen.

Schedule of Fatal Cases with Post-mortem Findings.

No.	Name	Age	Stage of syphilis	Treatment. g. = grams. gr. = grains.	Previous history.	Time of onset after treatment in days.	Duration of illness in days.
1	E. H.	Abt 20	Prim.	Salvarsan 7 g. Mercury 7 gr.	Nephritis 6 months previous.	Abt. 29	11
2	Pte. J. S.	21	Prim.	10 doses, 4 g. kharsivan and 10 gr. mercury.	Recent G.S.W.; old wound of liver; old right-sided pleurisy.	70	3
3	Cpl. G. D.	19	Sec.	2·2 g. kharsivan, 5 doses; 8 gr. Hg and some KI.	?	3	4
4	Sgt. O. H.	23	Doubtful history Wass ±	11 doses N.A.B.; Hg 9 gr.	Multiple flesh wounds 10 months. previous. Gonorrhœa 5 months previous.	40	2
5	Pte. J. A. G.	37	Prim.	9 doses N.A.B., 5·85 g.; 8 gr. Hg, 8 doses.	Alcoholic. Has gonorrhœa (? chronic); nephritis.	6	2
6	Pte. J.H. R.	21	Latent for 14 yrs.	7 doses N.A.B., 4·7 g.; 7 gr. Hg, 7 doses.	5 attacks gonorrhœa in two years. Slight, healed, T.B. right lung. Slight chronic nephritis. Heart slightly enlarged and degenerated.	37	13
7	Pte. W. C. R.	38	Latent for 18 yrs.	9 doses N.A.B., 4·65 g.; 7 gr. Hg, 7 doses.	Slight flesh wound 3 months previous. Old pleurisy right side.	35	13
8	Pte. J. S.	—	—	Has had intensive treatment. No particulars available.	No history except hæmatemesis.	—	—

Post-mortem Findings.

CASE 1.—Pericardial and mesenteric hæmorrhages; liver weight 32 oz., semi-fluid; spleen small; 200 c.cm. dark blood in stomach; subacute nephritis.

CASE 2.—Peritoneal hæmorrhages, old right pleurisy, atrophy of liver; degeneration of kidneys, spleen enlarged; hæmorrhage from stomach.

CASE 3.—Small mesenteric, subpericardial and sub pleuritic hæmorrhages, liver weight 32 oz., spleen weight 8 oz., gastric hæmorrhages.

CASE 4.—*Petechial hæmorrhage skin of neck*, mesenteric hæmorrhages, pleuritic hæmorrhages, blood in stomach +++; mass size of walnut in tail of pancreas, containing black, mucilaginous matter, (?) old blood, liver about one third normal size, fibrous; congestion of ileum with film coating it; spleen not enlarged.

CASE 5.—Mesenteric hæmorrhages, spleen enlarged and diffluent; kidneys—slight chronic nephritis; hæmorrhage under capsule of pancreas; pericardial hæmorrhages; a pint of hæmolysed blood in stomach; intestines contain blood; liver normal size, nutmeg appearance due to degeneration of parenchyma, less friable than normal; broncho pneumonia.

CASE 6.—Hæmorrhage in mesentery; old adhesions, left apex; liver smaller than normal, spleen enlarged and diffluent; kidneys enlarged; slight chronic nephritis; blood in stomach; slight myocardial degeneration of heart.

CASE 7.—Mesenteric and pericardial hæmorrhages, liver two thirds normal size, nutmeg appearance, fibrous, spleen small and diffluent; small hæmorrhages *under kidney capsule and under pancreas*, blood in stomach.

CASE 8.—Parenchymatous degeneration of liver, also kidneys; superficial erosions of stomach.

Summary.

(1) Fifty-eight cases of delayed poisoning following administration of salvarsan and mercury were observed. Forty-seven of these showed symptoms referable to the liver—namely, jaundice, decreased digestive power, and liver atrophy. Eight of these were fatal (see Schedule) and at autopsy showed marked atrophy of the liver. Atrophy of the liver may be marked in cases which ultimately recover. This condition can be diagnosed by X rays.

(2) Dermatitis occurred in eight cases. Five were severe with marked exfoliation.

(3) Peripheral neuritis was observed in two cases.

(4) Albuminuria was present in over 50 per cent. of the cases. Œdema was found in two cases.

(5) The onset of the symptoms seldom occurred until five weeks after the administration of salvarsan had ceased.

(6) The earliest symptoms of salvarsan poisoning of the liver were—bile in the urine, albuminuria, loss of appetite, and jaundice. These symptoms should be looked for in all patients receiving salvarsan treatment, and on their appearance the administration of salvarsan should cease.

(7) By X ray examination atrophy of the liver may be diagnosed at an early stage.

(8) Where evidence of liver damage is present the diet should be reduced to a minimum.

(9) Dermatitis with atrophy of the liver occurred in one patient who received arsenic in the form of Fowler's solution, ɱ v.

(10) We believe these were cases of delayed arsenical poisoning.

We are indebted to Hon. Captain Lachlan Gilchrist, C.A.M.C., for much help in the examination of the liver by X rays; and to Captain James H. Howell, C.A.M.C., who was in charge of the jaundice wards at No. 16 Canadian General Hospital for several months, for his painstaking work on the cases and for keeping accurate records; and to Captain H. B. Hetherington, pathologist, No. 14 Canadian General Hospital, who performed the autopsies on our fatal cases.

THE AFTER-HISTORY OF 500 CONSECUTIVE TUBERCULOSIS DISPENSARY CASES.

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THE following statistics were compiled after re examinations or investigations made during the latter end of the year 1919 and the beginning of 1920 of the cases recorded, which were first examined by me at the West Ham Tuberculosis Dispensary between the months of June and December, 1914. At that time (i.e., over five years ago), with the exception of patients sent for diagnosis by a *medical practitioner, only notified cases of* pulmonary tuberculosis and their contacts were dealt with at this institution.

Of the 500 cases examined, 238 were recently notified cases, 218 contacts of those cases, and 44 were "request" cases.

Notified cases.—Under this class were 153 males and 85 females; amongst this number were 18 cases which proved not to be tuberculous, including patients suffering from carcinoma of the œsophagus, carcinoma of the rectum, syphilis, diabetes, nephritis with œdema of the lungs. One very doubtful case left the district whilst undergoing observation at the dispensary.

Of the 219 positive cases, 95 were of type I, 67 of type II., and 57 of type III. (Types I, II, and III. correspond to the Turban Gerhardt classification.) Their after-history is shown in Table A —

TABLE A.—*Notified Cases.*

—	Arrested		Still under treatment		Dead		Left district untraced		Total	
	M	F	M	F	M	F	M	F	M	F.
Type I	26	14	9	8	11	3	13	11	59	36
Type II	5	0	7	4	19	12	15	5	45	22
Type III	0	0	3	1	28	16	6	3	37	20

In addition to dispensary or domiciliary treatment, 61 cases of type I., 48 of type II., and 23 of type III —in all 132 cases—were treated in sanatorium or hospital for periods varying from one month to one year, the average time being four months.

Contacts.—The majority of cases under this heading were children of school age, owing to the aversion of presumably healthy adults to attend for examination; chiefly the more "weakly" contacts were seen—i.e., those *who by reason of a cough* or some indefinite ailment induced the parent to suspect the possible presence of tuberculosis. Many

TABLE B.—*Contacts.*

—	Arrested		Still under *treatment*		Dead		Left district untraced		Total	
	M	F	M	F	M	F	M	F	M	F
Type I	7	7	2	3	1	2	3	2	13	14
Type II.	0	0	2	0	0	1	0	2	2	3
Type III	0	0	0	0	0	0	1	0	1	0
TABLE C.—"*Request*" *Cases.*										
Type I	5	1	2	0	2	1	0	1	9	3
Type II	0	1	0	0	2	2	0	1	2	4
Type III	0	0	0	0	4	0	0	0	4	0

more females than males made up this class, the former numbering 131 and the latter only 87, and yet of the 33 cases which proved to be definitely positive 19 were males and only 14 females, 27 being of type I., 5 of type II., and 1 of type III., with after-history as shown in Table B. Only 7 contacts received sanatorium treatment owing mainly to the absence of beds available for children.

"*Request*" *Cases.*—Of the 44 cases sent for diagnosis (25 males and 19 females), exactly one-half were found to be tuberculous, 12 being of type I., 6 of type II., and 4 of type III. Their after-history is shown in Table C. 13 of these cases received sanatorium treatment.

The positive cases from all three classes taken together show the approximate percentages given in Table D.

TABLE D.—*Combined List of Positive Cases.*

—	Arrested.	Under treatment.	Dead.	Left district untraced.	Received residential institutional treatment.
Type I.	44·7	18·0	15·0	22·3	53·0
Type II.	7·7	16·4	46·0	29·9	70·0
Type III.	0·0	6·4	77·4	16·2	42·0

The comparatively small percentage of type I. recorded as having received residential institutional treatment is due to the considerable number of children in this class for whom no institution was available; nearly all these children had dispensary treatment. Only a proportion of the adult cases tabulated as "arrested" have been verified by examination at the tuberculosis dispensary, but in practically every case the person is doing full-time work (industrial or household) and is not in need of medical treatment. All doubtful cases were kept under observation at the dispensary for varying periods before a definite diagnosis was made. Tuberculin was not used either as a diagnostic or curative agent, in any one of this series of cases. Periodical visits were paid to each case by the tuberculosis nurse to advise and encourage the best practicable hygienic measures in the home.

It is regrettable that such a considerable number of cases left the district and cannot be traced, as these would have somewhat modified the figures under the headings of arrested and dead, but the large migratory population of the industrial district from which the cases under consideration were drawn has been further augmented by war-time and post-war conditions.

Conclusions.

From the above analysis the following conclusions may be drawn:—

1. That pulmonary tuberculosis may be cured if treated in its early stages.
2. It is only the early case that derives any permanent benefit from sanatorium treatment (with rare exceptions); hence the futility of clogging the sanatoriums with the more advanced type of case.
3. Much more strenuous preventive measures should be adopted—e.g., additional suitable open-air schools and institutions for very advanced cases.
4. There is a sad lack of suitable institutions for the tuberculous child.
5. A certain percentage of positive adult contacts must escape detection while the disease is yet in its early stage.

Though of limited scope, I have ventured to publish these statistics in the hope that they may be of general interest and possibly prove of some utility.

Note.—Many reports recently published from various districts do not show such promising results as those above recorded. In this respect it may be of interest to note that this district was one of the first to adopt the medical inspection of school children and also the feeding of necessitous school children, in addition to being one in which the National Insurance Act has been in working order since 1912.

UNUSUAL CASES OF
INTESTINAL OBSTRUCTION.[1]

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IN the treatment of intestinal obstruction, whether acute or chronic, the surgeon must always be prepared for surprises, for there is probably no other department in the whole of surgery where the diagnosis of the underlying cause is so difficult to foretell. This is easily understood when one considers the manifold possibilities for mischief within the abdomen. Apart from purely intrinsic causes, the bowel may be impeded in its functions by many conditions of extrinsic origin. To enumerate these would take a long time, and I do not propose discussing them, since after all the exact diagnosis of the causal factor, in the vast majority of cases of intestinal obstruction, is only of academic importance.

Some time ago I reviewed the numerous cases of intestinal obstruction that had come under my observation. They included many cases of exceptional interest, and, on summing up the series, it was rather surprising to find that in many instances the exact cause of the obstruction was only revealed at the operation. From the series I have chosen four cases to illustrate the difficulties with which one may have to contend, both in diagnosis and operative treatment. Two of the cases came under the care of Sir A. Mayo-Robson while I was his assistant, and I have to thank him for permission to record them. The other two occurred in my own practice.

CASE 1. *Acute angulation at the hepatic flexure from pericolitis; rupture of the tæniæ coli of the cæcum.*—The patient was a man, aged 62, who for some years had suffered from mucous colitis. On a recent visit to South Africa and Egypt he had been very ill from dysentery. When seen by Sir A. Mayo-Robson the patient complained of pain and discomfort in the lower abdomen, and stated that he was passing undigested food and mucus. The bowels were acting irregularly, and the patient noticed that with a morning action he had abdominal discomfort for the rest of the day. There was much less pain when the bowels acted in the evening, and he was always better when constipated. The patient came into a nursing home and the rectum and sigmoid were examined by the sigmoidoscope, but beyond undue redness and hypertrophy of the mucous membrane nothing abnormal was detected. Two days later he was suddenly seized with acute griping pain in the right iliac fossa, accompanied by marked distension in that region. There was some collapse, followed by slight rise of temperature and pulse rate, and in the evening by vomiting The distension was not relieved by enemata, so next morning operation was decided on Up till now the symptoms pointed more to appendicitis than to anything else When the abdomen was opened a remarkable condition was revealed (Fig 1) The cæcum was enormously distended and very inflamed and at its junction with the ascending colon there were two transverse slits, each about an inch long, involving the peritoneal coat and the anterior and internal tæniæ coli The circular fibres were intact, but the divided ends of the longitudinal bands were one third of an inch apart The abdominal incision was enlarged when the ascending and about 5 inches of the first part of the transverse colon were found bound together by adhesions so that the general appearance resembled that of a double barrelled shot gun These adhesions were confined to the wall of the gut, and did not extend to the peritoneal lining of the abdominal wall At the hepatic flexure extreme angulation had been produced The adhesions, some of which were very dense, were carefully separated, and the raw surfaces left were stitched over with fine chromic catgut When the fused portions of the bowel were ultimately freed a few reefs were taken in the transverse mesocolon so as to bring this part of the gut into better line The divided tæniæ coli were then sutured and the appendix, which was tortuous and somewhat distended, was removed The abdomen was then closed The patient made a good recovery, and obtained great relief from the operation Two and a half years later he was still passing some mucus in the stools, but the abdominal pain had quite disappeared

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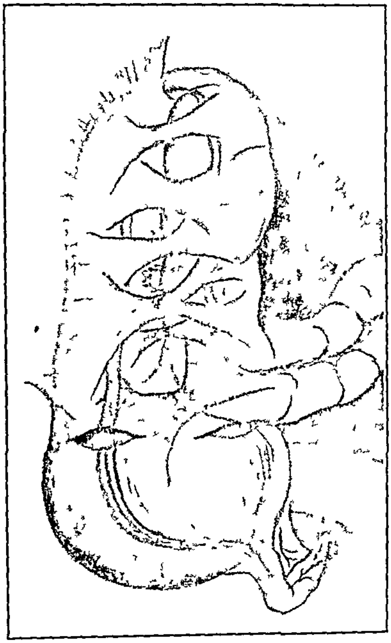
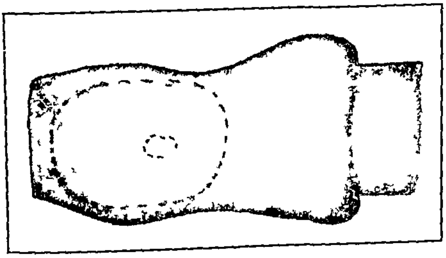
[1] Abstract of a lecture delivered before the Fellowship of Medicine on Jan. 28th, 1920.

FIG 1



CASE 1 —Acute angulation at the hepatic flexure from pericolitis Rupture of tæniæ coli

FIG 2

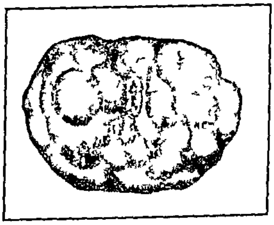


CASE 2 —Intussusception of the ileum secondary to polypus

Similar cases of obstruction of the large intestine have been recorded, notably by Jackson, Pilcher, Arbuthnot Lane, Mayo, and Gerster, but this case is probably unique in that, added to the acute angulation at the hepatic flexure, two of the three tæniæ coli were ruptured As these bands are shorter than the tube itself and keep the wall of the colon puckered, they were the first to give way during the acute distension of the cæcum If the obstruction had not been relieved by operation the partial rupture would, doubtless, have extended and probably become complete Much has been written on the ætiology of these constricting bands and adhesions, but this case seems to support Pilcher s view that they are the result of long continued or oft repeated mild infections of the peritoneal covering of the cæcum, colon, and appendix transmitted through the intestinal wall. Nowadays the extreme angulation would have been recognised by radiography after a bismuth meal but at the time when the patient was under treatment that diagnostic method was in its infancy

CASE 2 *Polypus of the ileum accompanied by chronic intussusception* —The patient was a woman of 65, who for some months had been subject to recurrent attacks of pain in the right lower quadrant of the abdomen These attacks had become more frequent and were usually accompanied by vomiting, abdominal distension, and constipation The vomit was always bile stained at first, but soon became foul, though never fæcal A swelling was ultimately detected in the hypogastrium, so operation was advised When the patient consulted Sir Arthur Mayo Robson the swelling was smooth and ovoid, and was about 3 inches long It was situated in the hypogastrium *to the right of the middle* line, and was freely mobile A diagnosis of tumour of the small intestine, probably malignant, was made At the operation the tumour was found in the ileum 6 inches from the ileo cæcal valve, but in addition there was a chronic intussusception immediately above (Fig 2) The intussusception was about 2 inches long and the various layers were much hypertrophied but not discoloured During reduction, which was easily performed, the tumour remained stationary it was not attached to the apex of the entering layer, as is generally the case Careful examination then revealed the fact that the growth was a polypus attached to the anterior wall of the ileum, midway between the mesenteric and free borders so the bowel was opened by a longitudinal incision and the tumour delivered through it It proved to be a large polypoid growth with a short narrow pedicle The

FIG 3

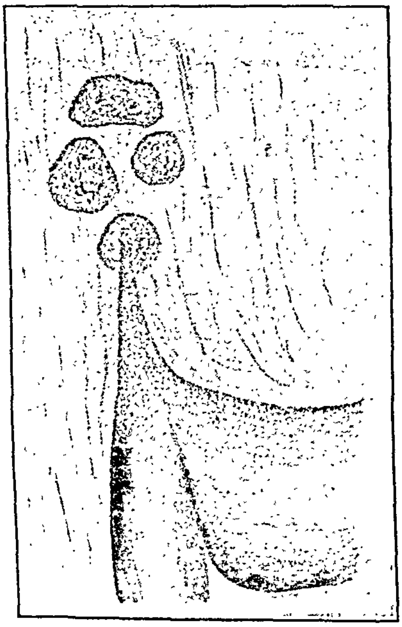


CASE 2 —Adenomatous polypus of the ileum latter was ligatured and divided and the bowel incision then closed by two continuous catgut sutures. The patient made a straightforward recovery and, happily for her, the polypus turned out to be of a simple character—an adenoma with a good deal of fibrous stroma. Fig. 3 shows the inner surface of the tumour with the pedicle. This surface was much lobulated, but the outer surface was smooth.

Single polypi of the small intestine are uncommon and in adults are often malignant. Not infrequently they produce intussusception, the polypus being found at the apex. In this case it was different. The intussusception was situated above the tumour and only the large size of the latter prevented the invagination from passing further down the bowel.

CASE 3. *Acute intestinal obstruction from traction diverticulum of the ileum.*—The patient was a man of 44, who had enjoyed good health until 12 years before, when he began to have recurrent attacks of abdominal pain, accompanied by vomiting. The pain, which was always of a griping nature, commenced behind the umbilicus and did not radiate. After a lapse of 12 to 18 hours there was profuse vomiting of bilious fluid. These attacks of sickness lasted for 24 hours and were sometimes relieved by taking a large dose of aperient. The griping pain usually subsided in three to four days. During each attack there was considerable abdominal distension. Ten years before I saw him (i.e., two years after the commencement of the recurrent attacks of pain and vomiting) the patient underwent an operation for acute appendicitis with abscess. The appendix was removed and the abscess drained. A weak scar resulted and the symptoms of pain and vomiting were not relieved; in fact, they became more frequent.

FIG. 4.



CASE 3.—Traction diverticulum of the ileum.

I first saw the patient with Dr. J. Henderson during one of these attacks, which had commenced 48 hours previously. Large quantities of bile-stained fluid were being vomited, and the abdominal pain was very severe. There was some general distension of the abdomen, and active peristalsis of coils of small intestine was plainly visible. I diagnosed obstruction of the small intestine, and advised that the abdomen be opened through the long weak appendectomy scar, for I considered that adhesions resulting from the appendicitis might be the cause of the trouble. The patient was removed to a nursing home and I operated the same afternoon. The weak scar was excised and the cæcum found attached to the anterior abdominal wall by some frail adhesions. It was, however, collapsed, so it was freed and search made for the obstructed part. The lower ileum, which was also collapsed, was rapidly examined from below upwards. About 6 feet from the ileocæcal valve the bowel was acutely kinked from a traction diverticulum. (Fig. 4.) The diverticulum was about 2 inches long and was adherent at its apex to one of four calcified lymphatic glands near the root of the mesentery. On freeing the diverticulum the kink immediately straightened out. The diverticulum appeared to be composed of all the coats of the intestinal wall, somewhat attenuated at the apex, but as it spontaneously contracted when it was freed I did not excise it, but contented myself with burying it by means of a purse-string suture. As the patient was very ill I did not spend time in removing the glands. A rapid repair of the weak abdominal scar was then performed and the abdomen closed. The patient obtained immediate relief from the operation and made an uninterrupted recovery.

Traction diverticula are of rare occurrence, but they have been found in all parts of the alimentary tract. They are small funnel-shaped pouches, produced by retraction of chronic localised peritonitis, by cicatrices in the wall of the intestine itself, or by inflammatory processes in adjacent organs. Adhesion of the bowel wall to a tuberculous lymphatic gland is one of the commonest causes. As Treves points out, mesenteric gland disease may lead to intestinal obstruction in various ways. The local peritonitis in the serous membrane covering the glands may produce adhesion of bowel or omentum, or may encourage the development of bands which may in turn cause intestinal strangulation. Or, again, the local peritonitis may lead to adhesions between the two limbs of a loop of intestine or between two remote parts of the intestinal tube. In Hilton Fagge's case the sigmoid was found adherent to the ileum and in the angle between the two attached portions of the gut was a caseous gland. In other cases the shrinkage of the mesentery after extensive gland disease was so pronounced and produced so much distortion as to cause obstruction of the adjacent bowel.

In the case which I have just described it is probable that the bowel became adherent to the gland early on in life, and that the diverticulum formation was a slow process produced by sagging of the intestinal loop. Obstructive symptoms appeared when the traction was sufficient to cause kinking of the gut.

CASE 4. *Strangulation of a loop of ileum by an adherent appendix epiploica of the sigmoid.*—The patient was a woman of 64, whom I saw in consultation with Dr. Edward Gregg. Two nights before she had been suddenly seized with severe pain in the lower abdomen, followed by profuse vomiting. Opium was given to relieve the pain and sickness. The patient was seen by Dr. Soltau Fenwick, who found a tense swelling in Douglas's pouch. He diagnosed pelvic peritonitis, and advised immediate operation. I saw the patient when she had been removed to a nursing home. The abdomen was rigid and tender but not distended. The tongue was furred. Pulse 120; temperature 100° F. On opening the abdomen by a subumbilical incision the pelvis was found filled with blood-stained fluid. This was quickly mopped up, when a coil of gangrenous small intestine presented in the wound. On passing the hand into the pelvis this gangrenous loop was found tied down by a band passing from the lower part of the sigmoid flexure to the bottom of the pouch of Douglas. The band was clamped, divided, and ligatured. As the proximal ligature was being passed, the band was examined and proved to be an attenuated appendix epiploica. The obstructed loop was now easily brought out through the incision. The ensnaring band had formed a marked constriction in the bowel wall and mesentery, but the gut above was not much distended, so I decided to excise the gangrenous loop and perform an end-to-end anastomosis. This was quickly done and the abdomen closed, a drainage-tube, passing down to Douglas's pouch, being left in the lower end of the wound. The patient made a splendid recovery, and the incision healed without any suppuration.

Many such cases of intestinal strangulation by appendices epiploicæ have been recorded. In Hulke's case an epiploic appendage from the sigmoid flexure was attached to the pelvic peritoneum near the right sciatic notch, and beneath the arcade so formed a loop of bowel had been strangulated. In another case, described by Holmes, an appendix epiploica formed a fatty fibrous ring around a loop of the lower ileum. As to what caused the adhesion of the appendage to the pelvic peritoneum in my case it is impossible to say. At first I thought I was dealing with a case of sacculitis of an epiploic appendage, but on examination there was no evidence of this. The appendage was long and fibrous, and did not appear to be patent. In sacculitis the appendage is usually hypertrophied and fatty, and often has a bulbous tip in which fæcal material becomes lodged and produces inflammation.

Harley-street, W.

A CASE OF COMBINED AORTIC AND MITRAL REGURGITATION

WHICH LASTED OVER 30 YEARS.

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THE prognosis of aortic regurgitation has been variously stated. One well-known authority could not remember the survival of anyone suffering from it for 15 years, whilst other authorities, equally well known, recorded survivals for 20, 25, or 30 years. Such discrepancies seem only explicable as the outcome of local differences in the general expectation of life, showing themselves incidentally in sufferers from cardiac disease. A few years ago, with this possibility in mind, I undertook to investigate the differences in longevity in the registration districts of England, and found them to be remarkable. In Leeds, where the shorter survivals above mentioned were recorded, only 6 per cent. of the population reached the age of 75 and over, whereas in some of our Devonshire districts, such as Axminster and Crediton, 25 per cent. attained them.

Advantages of South-East Devon for Cardiac Cases.

I have repeatedly drawn attention to the advantages in cardiac cases of the crescent of country which reaches from Lyme Regis to the Start, an area which should be spoken of as South-East Devon. In this area acute rheumatism is rare, level reaches are available, general longevity is notable, whilst relative warmth and equability of climate, shelter from strong and cold winds, abundant sunshine, moderate rainfall and dryness of subsoil, combine to protect from lung and kidney complications. Probably the long survival of the case I am recording has owed something to these local advantages.

For whatever may be held to be the general prognosis in uncomplicated rheumatic aortic regurgitation, there is now a consensus of opinion that the outlook is made worse by the coexistence of mitral regurgitation. I do not know of any instance in the literature of such prolonged survival of a patient with both these lesions. It would be interesting to know if such cases have been observed, for it was formerly thought by some that the presence of coincident mitral regurgitation lessened, instead of increasing, the risks of aortic regurgitation, a view, however, which has been long discredited.

The Case Described.

K. E., aged 24, a very intelligent girl, came under my care as an out-patient at the Royal Devon and Exeter Hospital in January, 1891, with aortic and mitral regurgitation. Her heart disease dated, she said, from a severe attack of rheumatic fever two and a half years previously, which, together with a relapse, kept her in bed for 15 weeks. This had been her only attack of rheumatism, and, I should add, that it remained so.

On March 10th, 1892, she came into hospital with a bad gastric attack following "a cold." Her heart's apex beat was then noted to be in the fifth intercostal space in the left mammary line; there was a well-marked aortic regurgitant murmur, and a well-marked mitral regurgitant murmur conducted backwards towards the axilla; the lungs and kidneys were normal; she had slight œdema of the ankles. On May 11th she was made an out-patient again, and as such remained under my care for several years on and off; later, having improved in general condition, she was only seen by me at very long intervals until her final illness at the end of 1918.

On Jan. 22nd, 1908, I made this note: "There is still the same tight gripping pain, palpitation and dyspnœa, with occasional faintness, but not worse than 15 years ago." The pulse was 72, not "water-hammer." The apex beat was in the sixth space, 1 inch outside the left mammary line; the right edge of the cardiac dullness was at the right edge of the sternum; at the apex a systolic as well as diastolic murmur was audible, at the aortic cartilage a diastolic murmur only; the second sound was nowhere accentuated; all these points were observed in the erect position. It was, I think, just prior to this date that she had strained her heart in nursing her uncle, an old and heavy man.

On April 4th, 1910, I made a further note. She was "much better" than in 1908. Her pulse was 80, very little "water-hammer" in character, but now there was some visible arterial pulsation in the neck up to the ears. She had palpitation "pretty often," but pain was only brought on by exertion. The heart was evidently a little larger; the dullness in the erect position reached rightwards 1½ inches, and leftwards 4½ inches from the midsternal line, the apex beat still being in the sixth space; the diastolic murmur was heard over the aortic cartilage, down the sternum, and at the apex, as before.

In December, 1918, I was called to her late one night, when I found her desperately ill, cyanosed, and fighting for breath, with a greatly dilated and hypertrophied heart acting tumultuously. I endeavoured vainly to induce her to come into hospital, and in January she died. Her life had been by no means an idle one; except for the one considerable strain of nursing her uncle, already mentioned, it had been free from physical overstress, but it was full of active and valuable work.

Remarks.

Points to which I would draw attention are, that the case was uncomplicatedly rheumatic, dating from her single attack of acute rheumatism at 22; that she was otherwise healthy, with no lung or kidney complications; that, for the most part, her work was free from physical strain; that she successfully avoided further rheumatism; that the degree of aortic regurgitation was probably slight for a good many years, since "water-hammer" pulse and pulsation in the neck were absent for that time (remembering, however, the influence of coincident mitral regurgitation in modifying the pulse); that præcordial pain, palpitation, and dyspnœa on exertion, with occasional faintness, were present almost throughout; and that so long as 11 years before her death the apex beat, in the erect position, was already in the sixth space, and 1 inch outside the left mammary line.

THE PLATING OF SIMPLE FRACTURES.

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SINCE there has been such a unique opportunity of testing the value of various methods of treatment of fractures during the past few years, I thought it might be of interest to record my own experience. It is more especially to the treatment of the simple fractures that I intend to confine my attention in this article, because of their greater frequency in civil life, and also because of the division of opinion still existing as to the best method of treatment.

In the first place I do not think it can be impressed too deeply on the student of surgery, or on the public at large, that a fracture is a difficult thing to deal with efficiently. The war has brought forward many new ideas on the treatment of fractures, and devices for the accurate splinting of limbs, and the work of Sinclair and others will be of lasting value, so that we may hope that in the future each fracture will be treated on its own merits, and that the era of the pattern splint, hopefully tied to a fractured limb, has passed.

Principles and Methods of Treatment.

In the treatment of any fracture there are two main principles that must be constantly kept in view: (1) that the bone must be restored, as far as possible to its original anatomical line; (2) that the joints above and below the site of fracture must have their complete function maintained.

It is true that very occasionally a good functional result may be obtained with an imperfect union of bone, but this in no way alters the main truth that the more perfect the reduction to the original anatomical line the more complete is the return of function. It must be remembered, also, that the restoration of the soft structures to their original position entirely depends on the reduction of the bone.

The two principles enunciated above are entirely interdependent. The movements of the neighbouring joints are often hindered by the misplacement of structures at the site of fracture, in the lower limb especially, where the bones bear the strain of the body-weight; any deviation of this strain, through faulty position of the bone, sooner or later causes changes in the joints. (Lane.)

There are two main methods of treatment for simple fractures:—

(1) The method of accurate splinting with extension, suspension, &c.[1]

(2) Operative treatment. Under the best circumstances a severe simple fracture presents a difficult problem. I believe that if the soft structures are destroyed sufficiently to allow of the effects of tension a complete reduction of the fragments may be obtained by non-operative measures. In order to achieve success the necessary equipment is essential, and much mechanical ingenuity and application may be required to deal with each fracture and overcome its particular difficulties. On the other hand, the effusion of blood into closed fascial compartments with little or no destruction of the soft parts offers an almost solid resistance, and renders immediate or even eventual reduction extremely difficult, and in cases where the displacement is severe, almost impossible. Therefore, in those cases of simple fracture, when an attempt at non-operative treatment has failed, operative treatment should be advised without delay. The operation of choice is that of plating, as evolved by Sir Arbuthnot Lane. I am advocating this method for the treatment of simple fractures. The question of plating compound fractures is an entirely different one, rarely arises in the early stages of their treatment and in the later stages only with full recognition of possible consequences.

Certain Objections Answered.

The main objections which have been brought against the operation of plating simple fractures, and have prevented its adoption as a routine method are: (1) that there are risks of sepsis; (2) that the plates and screws cause various after-effects and may have to be removed.

To avoid any risk of even the mildest infection, immediate or remote, the precautions insisted upon by Sir Arbuthnot Lane must be strictly adhered to by the surgeon and his assistants. The ultra care to be taken during the operation is absolutely essential to success. Apart from the actual technique which has been frequently described, there are one or two further considerations for the avoidance of infection which appear to me of importance.

The first, perhaps, is that of space. The initial incision should be of sufficient length to enable one to gain free access to the disturbed fragments and eventually to permit the introduction of a long plate. The muscles and periosteum are separated from the bone for the whole length of the incision. Lack of space renders manipulation with the large holding forceps and the insertion of the plate most difficult, with the consequence that the soft structures are apt to be lacerated, thus increasing the liability to continuous oozing afterwards and the risk of bacterial invasion.

The avoidance of post-operative bleeding and a hæmatoma which may leak through the wound and become mildly septic is most important. All bleeding points are at once seized by large hæmostat forceps, and these are left in situ till the end of the operation. It is rarely necessary to use ligatures, and they should be avoided as far as possible, as their absolute sterility is uncertain, and their application involves a definite risk of the fingers coming into contact with the wound. Bleeding tends to be most troublesome after operations on the femur. I believe it is better in these cases, after the insertion of the plate, to sew together the cut edges of the muscle and fascia by catgut sutures to assist in the arrest of bleeding, which sometimes is apt to continue.

When by manipulation the fractured ends of bone have been restored to their original position, the plate inserted should be of sufficient strength and length to secure the fragments firmly. There should never be any fear that shifting of position may occur afterwards. The plate is inserted with the idea that it shall remain in situ permanently, and it is no detriment when it has been properly applied and the operation has been absolutely aseptic. Occasionally, however, a plate has to be removed, and the most common reason for this is that it becomes loose. As a rule, this is due to faulty technique. The greatest care must be taken that the plate fits the bone accurately, so that the strain to maintain the fragments in position is divided equally between all the screws, and that no unequal strain is thrown on one or two; otherwise the screws that are strained will sooner or later become loose and the plate will separate from the bone. Another important detail is that the drill used is of suitable size, of a finer gauge than the screw. In this connexion I have found that, although more tiring to the surgeon, it is better to use a hand rather than a wheel drill as a more accurate idea of the density of the bone is obtained.

I do not agree with the statement sometimes made that the mere presence of the screws tends to cause rarefaction of the bone immediately around them If this were the case every screw and the plate would become loose, and they do not In the examination of a number of X ray photographs taken a considerable time (up to seven years) after the operation, it was impossible to detect any change round the majority of screws

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[1] See article, British Journal of Surgery, vol. v., No. 19, 1918.

It is important that weight should not be borne on the limb until sound union has occurred, otherwise an undue strain is thrown on the plate and screws which tends to loosen them There is no doubt that callus formation is small in amount when the fragments are completely immobilised in apposition, consequently sufficient time should be allowed for complete union to occur It is impossible to state definitely when union should have occurred in any particular fracture, each case must be judged individually

All these details have been pointed out and insisted on by Sir Arbuthnot Lane, but they bear repetition, since they are so essential to a good result I have omitted deliberately, to discuss sepsis as a cause for removal of the plate I can only state that sepsis should not occur, and that in my own experience of a considerable number of cases I have not encountered it

In those cases where of necessity the plate is immediately subcutaneous, such as the clavicle and lower end of the fibula it may be advisable to remove the plate when it has fulfilled its function and union is complete Such plates are palpable under the skin, and are noticeable to the patient, and tenderness may be complained of from pressure of the clothes Although the removal of the plate entails a second operation this is a small price to pay for a good result

It is stated sometimes that the permanent presence of the plate causes the bone to become tender and to ache This has been attributed to the fixation of a rigid metal plate to a resilient bone There is no doubt that owing to altered circulation at the site of injury all fractures, recent or old, occasionally ache after exercise, or during changes in the weather, but I have not been convinced that the presence of a plate increases this, unless it has become loose or is subcutaneous Now and then, by the more highly educated or perhaps more sensitive patients, a request is made that the plate should be removed when its function is completed, as a knowledge of its existence gives them a feeling of abnormality It is the exception, however, for any further interference to be necessary when the original operation has been performed efficiently

After treatment

After the actual operation is finished I always place fractures of the femur and tibia in a Thomas hip splint, preferably jointed or slightly bent at the knee

The limb is completely immobilised in the splint by cross straps, and the foot, slightly dorsiflexed, is suspended from a metal archway or secured to a Sinclair foot piece The whole splint is then suspended in a frame by means of weights and pulleys This arrangement gives the patients a wide range of movement, and at quite an early stage enables them to be sat in a chair without disturbance to the limb, while from the nursing point of view these otherwise difficult cases are readily moved and lifted without fear of pain to the injured part There is, as a rule, fairly severe pain for the first 24 hours after the operation, but afterwards the patients are comfortable and do not become enfeebled through forced inactivity

Fractures of the upper limb after operation, are fixed on a Thomas arm splint with a movable joint at the elbow, or on some suitable wooden splint, but the latter, I think, should be confined to fractures of the lower forearm Whatever splint is used, the hand and fingers are allowed a certain freedom, so that some movements may be commenced about the second day

The fractured limb is not touched until the tenth day, when the wound is dressed and the skin clips are removed After this the cross straps are less firmly applied so as to allow of some movement in the splint At the beginning of the third week general massage of the whole limb is commenced (it is wise, perhaps, to avoid massaging over the actual wound for a little longer), and active and passive movements of the joints very gentle at first and gradually increasing, are begun For the purposes of massage the limb remains in the splint, the cross straps only being undone and afterwards refastened As a general rule by the end of the third week the lower limb may be left entirely free in the splint, so that greater activity may be encouraged and in cases of the upper limb the splint may be discarded for an increasing time each day In cases where there has been much comminution of the bone it may be thought wiser to delay much active movement, but usually massage can be commenced with safety in the third week, however severe the fracture has been

In cases of fracture of the lower limb it is possible almost at any stage after the wound is healed to supply some form of ambulatory splint which allows no strain whatever to fall on the site of fracture and permits the patient to walk with crutches My own feeling is however, that it is safer to wait until it is sure that union is strong The freedom of movement permitted in bed by this method of splinting and suspension counteracts to a great extent the necessity for getting the patients up, and an occasional accident may be caused through anxiety to allow the patient to walk Although it is practically always possible to permit cases of fracture of the upper limb or clavicle to get up at an earlier stage than those with fractures of the lower limb, judgment of the individual case must here again be exercised

In conclusion, I am indebted to the medical authorities of the Army of the Rhine for permission to publish this article I wish to thank also Sister J Strachan, Captain F Harlow, R A M C, and Captain H E Grey, R A M C, whose skilful assistance made these operations possible

[Skiagrams showing the excellent results obtained in 9 of the above cases were submitted —ED L]

Devonshire place W

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL

EXTRACTION OF A SEWING NEEDLE FROM THE HEART.

By ZACHARY COPE, M D, M S LOND, F R C S ENG,
SURGEON TO THE BOLINGBROKE HOSPITAL SURGEON TO OUT PATIENTS ST MARY'S HOSPITAL

IN the case described below the slight evidence of pain caused by a needle in the cardiac substance was remarkable Though the cardiac muscle differs in structure from that of the intestine, yet it is involuntary and may resemble the intestinal musculature in absence of sensitiveness to tactile stimuli The sensitiveness to the stimuli of stretching due to distension of the enclosed cavity is common to both It was evident that the needle had travelled in the cardiac substance From a consideration of the point of entry into the chest wall and exit from the heart it must have moved about 2 inches, presumably through the substance of the right ventricle It almost appeared as if it were being extruded from the viscus It is an interesting speculation as to what would have been the course of the needle had it been thus extruded When the pleura was opened the heart fell away from the chest wall, and swayed violently to and fro with each respiratory movement. After about five minutes, however, the swaying lessened considerably, and the heart took up a position slightly nearer the chest wall. No disturbance was noted when the pericardium was gripped with a Spencer-Wells forceps.

Account of the Case.

A girl, 7 years old, was admitted to the Bolingbroke Hospital on March 2nd, 1920, with the history that a sewing-needle had been accidentally pushed into her chest. The place of entry was about an inch to the left of the sternum at the level of the upper border of the fourth costal cartilage. The house surgeon, under local anæsthesia, attempted to extract the needle; he cut down deep to the fibres of the pectoralis major and saw the extreme end of the needle in the depth of the wound. He was unable to grasp it, and the end completely disappeared whilst he was attempting to catch hold of it. He stated that it appeared to be sucked into the chest with each respiration.

I saw the child the same evening. Under the X rays the needle could be seen lying obliquely on a level with the fourth costal cartilage. It moved freely and completely with each heart beat, and it was clear that it was embedded in the heart. A general anæsthetic was administered by Major G. B. Lowe, and a slightly curved incision was made so as to expose the fourth and fifth left costal cartilages from which the muscular fibres were detached. About an inch of the fifth costal cartilage was removed, the portion resected being just internal to the vertical nipple line.

The pleura was opened, and for a time the swaying of the mediastinum and the cardiac pulsation made accurate observation impossible. The position of the needle had been observed from time to time during the operation by means of the fluorescent screen, and it was noteworthy that after the opening of the pleura the level of the shadow immediately became considerably lower than before. The mediastinal swaying gradually became less in extent, and by means of a good light it was possible to see about a quarter of an inch of the needle protruding near the left cardiac border. In order to steady the heart the pericardium was grasped by a Spencer-Wells forceps, and a similar forceps was passed into the pleural cavity so as to grasp and extract the needle. The parietal pleura could not be sewn, but the soft parts were brought together by two rows of catgut sutures, and the skin apposed by silkworm gut. The child stood the operation well, and the pulse-rate was neither irregular nor increased in rapidity at the end of the operation. The needle was 1⅝ inches in length.

When the child left hospital on March 22nd the wound was soundly healed, the left-sided pneumothorax was completely absorbed, and she felt perfectly well.

A DICEPHALOUS MONSTER.

BY M. Z. SHAFEÏ,
MEDICAL OFFICER, MANSOURA, EGYPT.

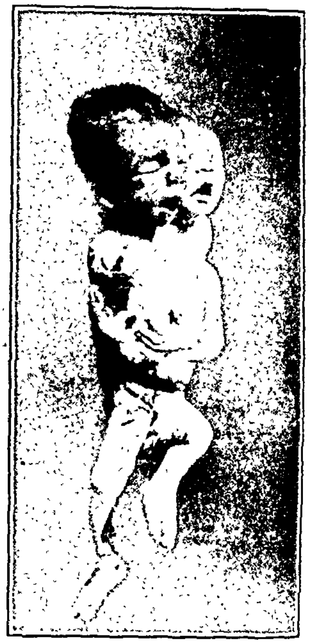
THE following case may be of some interest.

I was called at 7 A.M. on Feb. 24th to a woman said to have been in labour for three days. On arrival I found the patient (aged 20) in bed looking well. The history I got from her and from the midwife was that she had felt pain in the back and abdomen three days ago, and the midwife felt a head presentation. The head presented in the vagina for 24 hours. The midwife stated that she pulled the head as hard as she could but nothing more presented.

On examination I found a multiparous woman. Temperature normal, pulse 95, but not weak, and face not anxious. I felt a hard tumour in the right side of the true pelvis, and she complained of pain in the right thigh. Head and neck were outside the vagina, and the face was very congested. No pulsation felt in the facial artery, and no fœtal heart sounds heard. After evacuation of a full bladder and rectum I felt the shoulders filling the whole breadth of the pelvis. I tried in vain to move them to one side, but finding it impossible to pull down more than one arm, I decapitated the head, dislocated the arm at the shoulder, and did a version. On pulling the leg it disarticulated at the hip; then, helped by the pains, all the body came down and, to my astonishment, another head and neck was delivered, followed by the placenta. I douched the patient with lysol and gave her 10 c.cm. of antistreptococcal serum.

The condition of patient three days after was very good. She had no hæmorrhage and no rise of temperature, no tear in the perineum, and she promises, as I write, to continue a normal puerperium.

On examining the fœtus, I found it to be a male dicephalous monster, with two heads and necks, as seen in the appended photograph. The heads are fully developed. The monster was alive till six hours before delivery, as the patient felt its movements; one head was presenting. Although there is only one thorax, there are two vertebral columns, easily separable, reaching down to the sacrum. The two tracheas unite as one tube at the top of the thorax. There is one set of viscera in the thorax and abdomen. There is an imperforate anus and a phimosis. The testes are in the scrotum, which is bigger than normal and looks like two labia. The hair is well developed on both scalps. The length is 46 cm. and the weight 5 kg. The diagnosis was impossible and the treatment was circumstantial.



Dicephalous monster, male, with one thorax but two fully developed heads.

A CASE OF HYPOSPADIAS PERINEALIS.

BY S. CHELLIAH, M.B., C.M.,
ASSISTANT PATHOLOGIST, GENERAL HOSPITAL, COLOMBO.

THE patient here described had the anatomical characteristics of a man, but was brought up as a woman and was known by a feminine name, Punchi Nona. He was unmarried, and lived with and was supported by his sister's son. He was admitted into the female Diarrhœa Ward of the General Hospital, Colombo, on Nov. 24th, 1919, with anæmia, œdema of legs, and breathlessness of six months' duration, and died on Dec. 1st, at the age of 50, of uræmia due to chronic parenchymatous nephritis.

General appearance.—As shown in photo, with slight growth of hair on the chin and over the upper lip, larger growths in the armpits, slightly prominent *pomum Adami*, pyramidal growth of hair over the pubes, and deep and manly voice.

External genitalia.—The penis is small, imperfectly developed, looking not unlike a hypertrophied clitoris, adherent on either side to the scrotal integument, with no meatus urinarius. The scrotum is cleft, looking like the labia majora; the right half contains a testis, the left half is empty. The other testis was found in the left inguinal canal, together with a semi-solid blue mass close to it of the shape and size of the testis, due to phlebectasis of the veins of the pampiniform plexus. This mass was punctured by accident.

Urethra.—The lower wall of the urethra is defective as far back as the perineum, which condition, with the cleft scrotum, looks like the vulva. The sinus urogenitalis, thus presented, is wide and deep, about an inch in length, and opens directly into the bladder. The patient used to micturate in the squatting position.

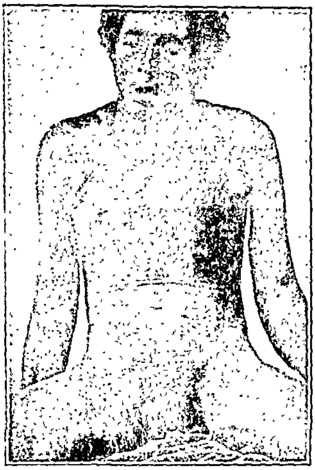


FIG. 1.—Pseudo-hermaphrodite, with male characteristics but brought up as a female.

Post-mortem examination.—The only pelvic organ was the bladder, the wall of which was thick, the mucous membrane slate-coloured and thrown into folds due to cystitis. The pelvis showed characteristics usually considered to indicate a male pelvis.

Microscopical examination.—The genital glands show the structure of the testis.

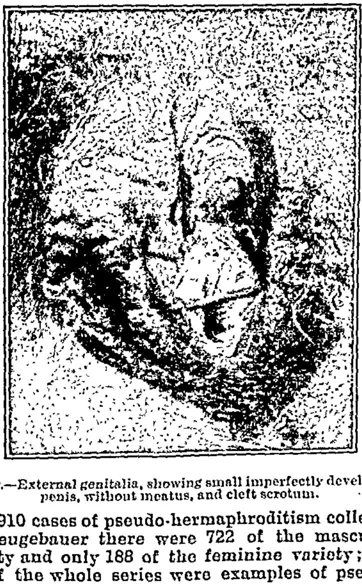


FIG. 2.—External genitalia, showing small imperfectly developed penis, without meatus, and cleft scrotum.

In 910 cases of pseudo-hermaphroditism collected by Neugebauer there were 722 of the masculine variety and only 188 of the feminine variety; and 613 of the whole series were examples of pseudohermaphroditismus masculinus externus.

Medical Societies.

PATHOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND.

A MEETING of this society was held in the Institute of Pathology, Charing Cross Hospital, on March 26th and 27th, with Dr. W. W. C. TOPLEY in the chair.

Dr. E. H. KETTLE described the Histological Changes in Five Spleens which had been removed by operation in cases of "splenic anæmia." The anatomical changes were very diverse, one being of the Gaucher type, one, perhaps, early Hodgkin, one possibly tuberculous, and the other two indefinite. There is evidently much room for further work in differentiating the various types of splenomegaly associated with secondary anæmia.

Dr. W. MACADAM (Leeds) pointed out how the downgrowth of epidermis and the formation of cell nests in both tuberous and ulcerating forms of oriental sore (leishmaniasis) might give a remarkable resemblance to epithelioma.

Professor M. J. STEWART (Leeds) and Dr. J. A. C. FORSYTH described the formation of massive deposits of cholesterin in two cases of Long-standing Mastitis.

Dr. J. G. GREENFIELD showed an example of Multiple Neurofibromatosis with Tumours on the Cranial, Spinal, and Peripheral Nerves, with some beautiful drawings of the organs.

Dr. H. CHAMBERS, Dr. G. SCOTT, and Mr. S. RUSS described experiments showing that an accurately measured dose of X rays increased the susceptibility of rats to the implantation of a spontaneous rat carcinoma. They had succeeded by this means in bringing into cultivation a tumour which was not transplantable in normal animals. An unsuitable dose might increase resistance.

Mr. S. W. COLE (Cambridge) demonstrated improved methods of estimating sugar in blood, hydrochloric acid in gastric contents, and non-proteid nitrogen in blood.

Dr. J. O. W. BARRATT discussed some of the physical considerations underlying the formation of fibrin.

Dr. C. PRICE-JONES described remarkable diurnal variations in the size of red blood corpuscles, and said that on the average they were about 0·5 μ smaller on first waking in the morning than at midday. He showed that the variations were related to the reaction of the blood, that violent exercise caused swelling, and forced breathing shrinking.

Professor A. E. BOYCOTT pointed out the great rapidity with which the injection of lactic acid into the circulation was compensated, and questioned whether, in view of all the evidence that the blood persistently maintains its normal composition, it was likely that small changes of body reaction could be detected by blood examination.

Dr. A. G. GIBSON (Oxford) described a new streptothrix, pathogenic to monkeys, which he had isolated from the spleen removed during life from a case of acholuric jaundice.

A paper by Dr. J. W. MCLEOD (Leeds) on his experiences on the isolation of Pfeiffer's bacillus from cases of influenza gave rise to an animated discussion on the ætiological rôle of this organism, in which Drs. J. S. Dunn, W. E. Carnegie Dickson, F. W. Andrewes, R. Muir, S. L. Cummins, J. O. W. Barratt, W. d'Este Emery, J. Ritchie, C. J. Martin, J. A. Murray, H. R. Dean, J. M. Beattie, and W. W. C. Topley took part. Opinions were about equally divided as to whether the "influenza bacillus" could be considered to be the cause of "influenza" or not, and it was generally felt that the problem would be easier to solve if both the bacillus and the disease could be more closely delimited and defined.

Dr. TOPLEY and Dr. H. B. WEIR showed that identical lesions may be produced in the joints and hearts of rabbits by the intravenous inoculation of streptococci obtained from rheumatic and non-rheumatic cases.

Dr. A. F. S. SLADDEN (Swansea) showed two cases of Chorion-Epithelioma, one in a double uterus.

Dr. W. E. **CARNEGIE DICKSON** detailed the discovery of mites in the urine in two persons.

Dr. C. J. **MARTIN** discussed the Adjustment of the Reaction of Media, and pointed out that an appearance of spurious accuracy was liable to be given by some of the methods in current use owing to the failure to take into consideration the slow precipitation of tri-calcium phosphate in weakly alkaline solutions, the solubility of soft glass, the carbon dioxide in the air, and the temperature of incubation being substantially different from that of titration. Extreme precision being unnecessary and almost impracticable, he described a simple plan which gave consistent and satisfactory results.

Dr. **TOPLEY** and Dr. G. S. **WILSON** showed a Counting Chamber for Bacteria with a dark-ground condenser; and Mr. J. E. **BARNARD** gave a demonstration of some of the higher flights of microscopical technique.

Dr. J. A. **ARKWRIGHT** described cultures of Shiga's and other bacilli which apparently consisted of two components, differing markedly in their mode of growth and in their agglutinability by salt and specific sera. He left it uncertain whether the phenomena were the result of mutation or of selection.

Mr. N. C. **LAKE** showed the method of cultivating tissues in vitro and some results obtained.

Professor C. H. **BROWNING** and Dr. E. L. **KENNAWAY** gave the results of an analysis of over 2000 quantitative Wassermann tests, and proposed the following criteria: taking the amount of complement which gives complete hæmolysis in the negative control as 100, positive reactions are those which require more than 200 complement, negative those taking less than 150, the intermediate zone being regarded as neutral.

Dr. T. **TANIGUCHI** described a number of curious observations on heterogenetic antibodies—i.e., the sheep hæmolysins produced by injecting, for example, an emulsion of guinea-pig kidney into rabbits—and showed their specific relations to the tissue lipoids. He also pointed out that the sheep immune body which is sometimes present in human serum might give rise to an erroneously positive Wassermann test if an extract of guinea-pig heart was a component of the reaction.

Dr. F. **GRIFFITH** and Dr. W. M. **SCOTT** formulated proposals for improvements in the technique of the Wassermann reaction.

TUBERCULOSIS SOCIETY.

THE SYMPTOMATIC TREATMENT OF THE ADVANCED CASE.

AT a meeting of this society, held at the rooms of the Medical Society of London on March 29th, Dr. H. **BATTY SHAW** opened a discussion upon this subject. Nowadays, he said, owing to the establishment of tuberculosis dispensaries he did not see nearly so many advanced cases as previously. At present clinicians were engaged chiefly in discussions over doubtful cases, and the advanced case, which should be the chief care of the hospitals, was being turned away. In doing this the case was placed under that very unsatisfactory system called "domiciliary treatment." Consumption the result of secondary infection was one thing; advanced tuberculosis another. The treatment of consumption was at present futile, but this might to a great extent be prevented from occurring by prophylactic vaccine, inoculation against the secondary infection, combined with fresh air and hygiene. The tendency now was to concentrate upon the early case, but we should "put the clock back," and make the advanced case our special care. Hospitals were needed in each area where treatment and nursing could be provided and the case remain indefinitely. For those who did not need hospital treatment, domiciliary treatment on much improved lines should be provided. In dealing with special symptoms he did not think it advisable to keep the advanced case in bed indefinitely; many patients were better up and about. He allowed patients to eat what they liked, with, if possible, a preponderance of fat. The *appetite* could be improved by mixtures containing gentian and soda, *gentian and acid*, *phosphorus* and strychnine, and in some cases malt. Alcohol was not detrimental; as an appetiser it did good. *Cough* which disturbed *sleep* should be controlled, and he gave opium in large doses for this: small doses were useless. He recommended pil. ipecac. c. scilla gr. x.; heroin, $\frac{1}{8}$ gr. as being useful doses. Menthol in 10 to 20 per cent. solution used as a spray was often very valuable. The morning cough was made easier by a good drink of warm milk. For vomiting without cough he gave hydrocyanic acid, bismuth, and morphine. *Hæmoptysis* was treated with morphia, turpentine inhalations, and ice to suck. These, although not definite hæmostatics, gave the patients something to do and drew their attention from coughing. Calcium lactate was useless. Artificial pneumothorax was of value in some cases. *Sweating* was best controlled by limiting the bed-covering. Drugs lost their value after a few nights, and antipyretics only falsely encouraged patients to the belief that improvement had taken place. *Diarrhœa* might be controlled by sulphuric acid and opium, bismuth and opium, or perchloride of mercury and opium. *Laryngeal pain* was relieved by a cocaine lozenge, $\frac{1}{6}$ gr., before food, or by a spray containing 10 to 20 per cent. cocaine. Leduc's tube with orthoform was not very satisfactory, as the powder rarely reached the larynx. Injection of alcohol into the superior laryngeal nerve in very advanced cases had been practised with good results. *Pleurodynia* was best relieved by iodine and belladonna. *Cavities* could often be emptied by posture, but care should be exercised lest fresh areas of lung should become infected by inspiration. Anæsthetics were on this account dangerous. *Pneumothorax treatment*, although not curing the disease, was of great value in relieving symptoms. He preferred the open operation, which allowed exploration of the pleural cavity to be done. Two cases treated at University College Hospital by this method were shown.

Dr. J. J. **MACDONALD** and Dr. S. P. N. **PARSONS** gave short accounts of the methods of treatment being practised at the Brompton and University College Hospitals.

Dr. **HALLIDAY SUTHERLAND** emphasised the need for more hospitals for advanced cases. The cause of much failure in domiciliary treatment and the imperfect notification of the disease was the inadequate remuneration of the panel practitioners. He had used creasote up to 40 minims three times a day, also colloidal copper, but with no beneficial results. He considered the simple puncture method of pneumothorax quite adequate.

Dr. **JANE WALKER** said that advanced cases should be allowed to work, even though life was thereby shortened. She did not believe in keeping these cases for endless periods in bed. Alcohol in reasonable quantity should be allowed. Soda and hot water were of benefit to bring up sputum and posture helped in some cases. She gave horse serum on four consecutive mornings fasting, and it had proved beneficial in hæmoptysis.

Dr. F. **STANLEY TINKER** did not think sufficient attention was paid to other organisms present with the tubercle bacillus. A recent case in which streptococci had been found had made a remarkable recovery after 18 months in bed. Within a few weeks she was able to assume a normal life. He advocated better pathological facilities in each area, so that pathologist and clinician might work in coöperation.

Dr. W. **BRAND** described the discomforts which many patients in the advanced stages had to endure. Poverty should not be a bar to comfort, and we should rather parade common-sense than pure medicine. Even though we failed in the treatment of the advanced cases, we could, at any rate, make their lot easier.

Dr. A. **SANDISON** had found that many advanced cases were better for being up, and even fever in slight degree had vanished. This might be due to the mental effect. He had not found any benefit from chlorine and potassium iodide.

Dr. **JOHN SORLEY** said that in his experience a case of hæmoptysis either died before any help could be given, or else it did not require treatment. Small hæmoptyses were beneficial in promoting fibrosis.

Dr. **BATTY SHAW**, in reply, said that the operation shown for pneumothorax offered facilities for dividing adhesions, and in this way tended to increase the percentage successes. He did not advocate the treatment of mixed infection by vaccine, but inoculation as a prophylactic against its occurrence.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

A MEETING of this society was held at Sheffield on March 19th, when Mr. Miles H Phillips, the President, read short paper on

Unilateral Pelvo abdominal Pain due to Constriction of the Ureter.

The type of patient he had in mind, he said, complained of a ocalised and clearly described pelvic or pelvo abdominal pain, intensified by menstruation, for which the most careful pelvic examination, or even abdominal exploration, could find no satisfactory explanation. By a study of three ases he showed that constriction of a ureter by scar tissue r other band was a sufficiently likely cause to warrant xploration with the cystoscope and ureteral catheter. The first case had pain in right iliac and lumbar regions, commencing three days after hysterectomy for a fibroid which caused post partum hæmorrhage. Pain persisted although he general condition steadily improved. The bladder was examined a fortnight after operation, and the right ureter was seen to be acting less frequently, and ejecting a smaller stream of urine than the left. Further examinations later showed the right ureter apparently blocked. The abdomen was reopened and the affected ureter found dilated at the pelvic brim, and constricted about 1 inch from bladder by a ough fibrous cord containing vessels, and evidently resulting from tissue dragged inwards and included in the ligature round the right uterine artery at the previous operation. The division of the cord was followed by rapid recovery and no further pain. The second case was one of pain in left iliac and lumbar regions dating from confinement 17 years previously. There was menorrhagia and a pre menstrual exacerbation of pain No enlargement of left kidney; cervix deeply split on left side and firm scar in left fornix. The abdomen was opened and the left ureter found distended above a point opposite the cervix, where it plunged into a dense mass of scar tissue. The ureter was separated with difficulty, and hysterectomy was performed. The operation took place two years ago, and no pain had been experienced since. The third case was a single girl with pain in the right iliac fossa, commencing in 1914. Dilatation of cervix brought no relief. The right kidney was unduly mobile, and was fixed to fascia and muscles of loin 18 months later, but the pain continued. The abdomen was opened after a further interval of 18 months The uterus, appendages, and vermiform appendix were normal, and the right kidney well fixed There was extensive Jackson's membrane across the ascending colon, and strong peritoneal bands about the cæcum. The right ureter was bound down by a fibrous band, hardly more than a ridge of peritoneum, at a point 2 inches above pelvic brim. The band was divided and the patient completely relieved. In none of the cases was there any tangible enlargement of the kidney, but a hydronephrosis would probably have resulted had the obstruction not been removed. The symptoms complained of were those of early ureteric obstruction, and the fact that an increase in pain occurred before or during menstruation brought the cases under the care of the gynæcologist.

Dr. D. Dougal and Dr. J W. Bride (Manchester) communicated a paper on

Factors causing Abortion · an Analysis of 100 Cases.

The paper was based on a clinical and pathological examination of 100 consecutive cases of abortion admitted to the maternity department of St. Mary's Hospital, Manchester The authors pointed out that the work was in the nature of an experiment, and that a hundred cases formed too small a number on which to base authoritative results. They hoped, however, to continue the work along similar lines The following conclusions were arrived at as a result of the investigation. (1) Abortion occurs most commonly between the third and fourth months (2) It is comparatively uncommon in primiparæ; less than one fifth of the series belonged to this category. Most women who abort have borne previous full term children, and in most cases more than one. Frequent abortions in the same patient are uncommon and not necessarily due to syphilis (3) As regards the factors producing abortion, accidental and reflex causes account for 18 per cent ; general disease of the mother, 7 per cent ; disease or displacement of the mother's genital organs, 12 per cent ; and gross abnormalities of the fœtus, cord, or placenta other than those due to hæmorrhage and infarction, 6 per cent. They considered that the importance of syphilis as a cause of abortion had been somewhat exaggerated. The Wassermann reaction was positive in 12 cases, but in half of these some other abnormal condition was present which by itself might have produced the abortion. In only one case were clinical signs of syphilis present, and in no specimen could typical syphilitic changes or spirochætes be demonstrated. They estimated at not more than 10, and probably nearer 8, the percentage of cases in which syphilis produces abortion. The percentage of self induced cases was difficult to estimate, but was probably not less than 20 per cent. Ten patients in the series admitted that they had wilfully brought on abortion, and 8 of these employed lead pills for the purpose In 30 per cent of cases no cause could be assigned, and pathological investigation threw little additional light on the subject It would appear, however, that the mother was at fault in the great majority of cases as the result of some diseased condition, whether of an organic nature or merely an increased irritability of the centres which preside over the expulsive action of the uterus.

ROYAL MEDICO-CHIRURGICAL SOCIETY OF GLASGOW.

AT a meeting of the society held on March 19th, Mr. A. Ernest Maylard, the President, being in the chair, Dr. Wm. Rankin reported (*a*) two cases of Ruptured Jejunum. (1) A man, aged 19, who had fallen from a scaffold, landing on his abdomen, presented no external abrasion, but was collapsed and in great pain, with a very rigid abdomen. Operation a few hours later revealed an almost completely transverse tear of the jejunum, which was sutured. Patient was dismissed well on twenty second day. (2) A man who, having fallen down the hold of a ship and struck some beams in falling, presented a fracture of the crest of the ilium and blood in the urine At operation seven hours later two tears were found in upper part of jejunum, which were sutured. Patient was seriously ill for four days, but ultimately made an excellent recovery. (*b*) A case of Diaphragmatic Hernia operated on through the pleural cavity. The patient, a boy aged 8, was run over by a motor van, and presented bruising and a rigid abdomen. An exploratory incision above the umbilicus showed that the spleen and greater part of stomach had been displaced into the left pleural cavity through a large tear in the diaphragm The abdominal wound was closed and an osteoplastic flap, including portions of two ribs in the axillary and posterior regions of the left thorax, was turned up to give free access to the pleural cavity. Through this the organs were replaced without difficulty and the tear in the diaphragm sutured. The patient was dismissed well after 25 days, and when seen at the meeting (5½ years later) showed no abnormality of the chest or lungs.

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Dr. W. E. **CARNEGIE DICKSON** detailed the discovery of mites in the urine in two persons.

Dr. C. J. **MARTIN** discussed the Adjustment of the Reaction of Media, and pointed out that an appearance of spurious accuracy was liable to be given by some of the methods in current use owing to the failure to take into consideration the slow precipitation of tri-calcium phosphate in weakly alkaline solutions, the solubility of soft glass, the carbon dioxide in the air, and the temperature of incubation being substantially different from that of titration. Extreme precision being unnecessary and almost impracticable, he described a simple plan which gave consistent and satisfactory results.

Dr. **TOPLEY** and Dr. G. S. **WILSON** showed a Counting Chamber for Bacteria with a dark-ground condenser; and Mr. J. E. **BARNARD** gave a demonstration of some of the higher flights of microscopical technique.

Dr. J. A. **ARKWRIGHT** described cultures of Shiga's and other bacilli which apparently consisted of two components, differing markedly in their mode of growth and in their agglutinability by salt and specific sera. He left it uncertain whether the phenomena were the result of mutation or of selection.

Mr. N. C. **LAKE** showed the method of cultivating tissues in vitro and some results obtained.

Professor C. H. **BROWNING** and Dr. E. L. **KENNAWAY** gave the results of an analysis of over 2000 quantitative Wassermann tests, and proposed the following criteria: taking the amount of complement which gives complete hæmolysis in the negative control as 100, positive reactions are those which require more than 200 complement, negative those taking less than 150, the intermediate zone being regarded as neutral.

Dr. T. **TANIGUCHI** described a number of curious observations on heterogenetic antibodies—i.e., the sheep hæmolysins produced by injecting, for example, an emulsion of guinea-pig kidney into rabbits—and showed their specific relations to the tissue lipoids. He also pointed out that the sheep immune body which is sometimes present in human serum might give rise to an erroneously positive Wassermann test if an extract of guinea-pig heart was a component of the reaction.

Dr. F. **GRIFFITH** and Dr. W. M. **SCOTT** formulated proposals for improvements in the technique of the Wassermann reaction.

TUBERCULOSIS SOCIETY.

THE SYMPTOMATIC TREATMENT OF THE ADVANCED CASE.

AT a meeting of this society, held at the rooms of the Medical Society of London on March 29th, Dr. H. **BATTY SHAW** opened a discussion upon this subject. Nowadays, he said, owing to the establishment of tuberculosis dispensaries he did not see nearly so many advanced cases as previously. At present clinicians were engaged chiefly in discussions over doubtful cases, and the advanced case, which should be the chief care of the hospitals, was being turned away. In doing this the case was placed under that very unsatisfactory system called "domiciliary treatment." Consumption the result of secondary infection was one thing; advanced tuberculosis another. The treatment of consumption was at present futile, but this might to a great extent be prevented from occurring by prophylactic vaccine, inoculation against the secondary infection, combined with fresh air and hygiene. The tendency now was to concentrate upon the early case, but we should "put the clock back," and make the advanced case our special care. Hospitals were needed in each area where treatment and nursing could be provided and the case remain indefinitely. For those who did not need hospital treatment, domiciliary treatment on much improved lines should be provided. In dealing with special symptoms he did not think it advisable to keep the advanced case in bed indefinitely; many patients were better up and about. He allowed patients to eat what they liked, with, if possible, a preponderance of fat. The *appetite* could be improved by mixtures containing gentian and soda, gentian and acid, phosphorus and strychnine, and in some cases malt. Alcohol was not detrimental; as an appetiser it did good. *Cough* which disturbed *sleep* should be controlled, and he gave opium in large doses for this: small doses were useless. He recommended pil. ipecac. c. scilla gr. x.; heroin, $\frac{1}{6}$ gr. as being useful doses. Menthol in 10 to 20 per cent. solution used as a spray was often very valuable. The morning cough was made easier by a good drink of warm milk. For vomiting without cough he gave hydrocyanic acid, bismuth, and morphine. *Hæmoptysis* was treated with morphia, turpentine inhalations, and ice to suck. These, although not definite hæmostatics, gave the patients something to do and drew their attention from coughing. Calcium lactate was useless. Artificial pneumothorax was of value in some cases. *Sweating* was best controlled by limiting the bed-covering. Drugs lost their value after a few nights, and antipyretics only falsely encouraged patients to the belief that improvement had taken place. *Diarrhœa* might be controlled by sulphuric acid and opium, bismuth and opium, or perchloride of mercury and opium. *Laryngeal pain* was relieved by a cocaine lozenge, $\frac{1}{6}$ gr., before food, or by a spray containing 10 to 20 per cent. cocaine. Leduc's tube with orthoform was not very satisfactory, as the powder rarely reached the larynx. Injection of alcohol into the superior laryngeal nerve in very advanced cases had been practised with good results. *Pleurodynia* was best relieved by iodine and belladonna. *Cavities* could often be emptied by posture, but care should be exercised lest fresh areas of lung should become infected by inspiration. Anæsthetics were on this account dangerous. *Pneumothorax treatment*, although not curing the disease, was of great value in relieving symptoms. He preferred the open operation, which allowed exploration of the pleural cavity to be done. Two cases treated at University College Hospital by this method were shown.

Dr. J. J. **MACDONALD** and Dr. S. P. N. **PARSONS** gave short accounts of the methods of treatment being practised at the Brompton and University College Hospitals.

Dr. **HALLIDAY SUTHERLAND** emphasised the need for more hospitals for advanced cases. The cause of much failure in domiciliary treatment and the imperfect notification of the disease was the inadequate remuneration of the panel practitioners. He had used creasote up to 40 minims three times a day, also colloidal copper, but with no beneficial results. He considered the simple puncture method of pneumothorax quite adequate.

Dr. **JANE WALKER** said that advanced cases should be allowed to work, even though life was thereby shortened. She did not believe in keeping these cases for endless periods in bed. Alcohol in reasonable quantity should be allowed. Soda and hot water were of benefit to bring up sputum and posture helped in some cases. She gave horse serum on four consecutive mornings fasting, and it had proved beneficial in hæmoptysis.

Dr. F. **STANLEY TINKER** did not think sufficient attention was paid to other organisms present with the tubercle bacillus. A recent case in which streptococci had been found had made a remarkable recovery after 18 months in bed. Within a few weeks she was able to assume a normal life. He advocated better pathological facilities in each area, so that pathologist and clinician might work in coöperation.

Dr. W. **BRAND** described the discomforts which many patients in the advanced stages had to endure. Poverty should not be a bar to comfort, and we should rather parade common-sense than pure medicine. Even though we failed in the treatment of the advanced cases, we could, at any rate, make their lot easier.

Dr. A. **SANDISON** had found that many advanced cases were better for being up, and even fever in slight degree had vanished. This might be due to the mental effect. He had not found any benefit from chlorine and potassium iodide.

Dr. **JOHN SORLEY** said that in his experience a case of hæmoptysis either died before any help could be given, or else it did not require treatment. Small hæmoptyses were beneficial in promoting fibrosis.

Dr. **BATTY SHAW**, in reply, said that the operation shown for pneumothorax offered facilities for dividing adhesions, and in this way tended to increase the percentage successes. He did not advocate the treatment of mixed infection by vaccine, but inoculation as a prophylactic against its occurrence.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

A MEETING of this society was held at Sheffield on March 19th when Mr Miles H Phillips, the President, read a short paper on

Unilateral Pelvo abdominal Pain due to Constriction of the Ureter

The type of patient he had in mind, he said, complained of a localised and clearly described pelvic or pelvo abdominal pain, intensified by menstruation, for which the most careful pelvic examination, or even abdominal exploration, could find no satisfactory explanation By a study of three cases he showed that constriction of a ureter by scar tissue or other band was a sufficiently likely cause to warrant exploration with the cystoscope and ureteral catheter The first case had pain in right iliac and lumbar regions commencing three days after hysterectomy for a fibroid which caused post partum hæmorrhage Pain persisted although the general condition steadily improved The bladder was examined a fortnight after operation and the right ureter was seen to be acting less frequently, and ejecting a smaller stream of urine than the left Further examinations later showed the right ureter apparently blocked The abdomen was reopened and the affected ureter found dilated at the pelvic brim, and constricted about 1 inch from bladder by a tough fibrous cord containing vessels, and evidently resulting from tissue dragged inwards and included in the ligature round the right uterine artery at the previous operation The division of the cord was followed by rapid recovery and no further pain The second case was one of pain in left iliac and lumbar regions dating from confinement 17 years previously There was menorrhagia and a pre menstrual exacerbation of pain No enlargement of left kidney, cervix deeply split on left side and firm scar in left fornix The abdomen was opened and the left ureter found distended above a point opposite the cervix, where it plunged into a dense mass of scar tissue The ureter was separated with difficulty, and hysterectomy was performed The operation took place two years ago, and no pain had been experienced since The third case was a single girl with pain in the right iliac fossa commencing in 1914 Dilatation of cervix brought no relief The right kidney was unduly mobile and was fixed to fascia and muscles of loin 18 months later, but the pain continued The abdomen was opened after a further interval of 18 months The uterus appendages, and vermiform appendix were normal, and the right kidney well fixed There was extensive Jackson's membrane across the ascending colon, and strong peritoneal bands about the cæcum The right ureter was bound down by a fibrous band, hardly more than a ridge of peritoneum at a point 2 inches above pelvic brim The band was divided and the patient completely relieved In none of the cases was there any tangible enlargement of the kidney, but a hydronephrosis would probably have resulted had the obstruction not been removed The symptoms complained of were those of early ureteric obstruction and the fact that an increase in pain occurred before or during menstruation brought the cases under the care of the gynæcologist

Dr D Dougal and Dr J W Bride (Manchester) communicated a paper on

Factors causing Abortion an Analysis of 100 Cases

The paper was based on a clinical and pathological examination of 100 consecutive cases of abortion admitted to the maternity department of St Mary's Hospital, Manchester The authors pointed out that the work was in the nature of an experiment and that a hundred cases formed too small a number on which to base authoritative results They hoped, however, to continue the work along similar lines The following conclusions were arrived at as a result of the investigation (1) Abortion occurs most commonly between the third and fourth months (2) It is comparatively uncommon in primiparæ, less than one fifth of the series belonged to this category Most women who abort have borne previous full term children and in most cases more than one Frequent abortions in the same patient are uncommon and not necessarily due to syphilis (3) As regards the factors producing abortion, accidental and reflex causes account for 18 per cent, general disease of the mother, 7 per cent, disease or displacement of the mother's genital organs 12 per cent, and gross abnormalities of the fœtus cord, or placenta other than those due to hæmorrhage and infarction 6 per cent They considered that the importance of syphilis as a cause of abortion had been somewhat exaggerated The Wassermann reaction was positive in 12 cases but in half of these some other abnormal condition was present which by itself might have produced the abortion In only one case were clinical signs of syphilis present, and in no specimen could typical syphilitic changes or spirochætes be demonstrated They estimated at not more than 10 and probably nearer 8 the percentage of cases in which syphilis produces abortion The percentage of self induced cases was difficult to estimate, but was probably not less than 20 per cent Ten patients in the series admitted that they had wilfully brought on abortion, and 8 of these employed lead pills for the purpose In 30 per cent of cases no cause could be assigned, and pathological investigation threw little additional light on the subject It would appear however, that the mother was at fault in the great majority of cases as the result of some diseased condition, whether of an organic nature or merely an increased irritability of the centres which preside over the expulsive action of the uterus

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Reviews and Notices of Books.

VITAL STATISTICS.

An Introduction to the Science of Demography. By GEORGE CHANDLER WHIPPLE, Professor of Sanitary Engineering in Harvard University; Member of the Public Health Council, Massachusetts State Department of Health. London: Chapman and Hall, Ltd. New York: John Wiley and Sons, Inc. 1919. Pp. 517. 18s. 6*d.*

THE appearance of an American handbook on vital statistics is a sign of the increasing importance attached to this subject in the United States. It is a commonplace in the history of public health in England that its progress has, in very large measure, been impelled and guided, as well as measured, by our national death returns, under the inspiring influence of William Farr and his successors. But in the United States the path of the vital statistician is strewn with difficulties. Thus, quoting from Mr. Whipple, not only are state "governments too easy-going to insist on the enforcement of such laws as exist," but laws are inadequate in most states, and the registration returns are made by a large number of clergy and laymen, "not properly instructed, not interested in the proceedings, and not always understanding the law." Worst of all, the people themselves "do not appreciate the personal importance of having the most important events in their lives made matters of public record." This defect is most marked in regard to birth registration. Thus in Cambridge, Mass., the seat of Harvard University, the birth records are so incomplete "that annually a house-to-house canvas is made to ascertain the births for the year." Mr. Whipple adds: "This is a disgraceful admission of incompetence on the part of the local registrar and of the negligence of all concerned." During last year the Children's Bureau of Washington, a department of the Labour Ministry, initiated an educational "drive" by leaflets, &c., urging everyone to register the birth of their children. Meanwhile, in a majority of states the registration of births is so imperfect as to render it impracticable to determine whether progress is being made in the saving of child life, to compare different areas with each other, or to determine the exact amount of loss of maternal life in childbearing in terms of the exposure to risk. In stating these facts it must always be borne in mind that a large proportion of the population of the states is alien, among whom the difficulties both of registration and sanitation are exceptionally great.

Morbidity statistics are incomplete to a very varying degree. It is interesting to note that in most states this duty is imposed on physicians, no fee being paid for the certificate. As regards death returns, in 1918 nearly 78 per cent. of the total population of the United States was in "registration areas," which for this purpose means states and cities in which satisfactory registration laws are being effectively enforced, and where there is reason to believe that more than 90 per cent. of all deaths are being registered; a standard which must still be regarded as unsatisfactory.

It is evident that in dealing with such relatively unsatisfactory material as the above facts imply Mr. Whipple's task is made more difficult than it would be under more favourable conditions. Fortunately, however, he deals rather with methods than with an analysis of statistical or epidemiological results, and on these lines the elegant volume which is before us contains much of general interest, and of special interest to all who have to deal practically with the analysis of vital statistics. The first chapter gives a short sketch of demography; in the second the elements of statistical arithmetic are stated. In this chapter we welcome the statement: "It is pitiful to see the energy and time wasted by some health officers in using unnecessary decimals in performing long division operations"; and we may add the further expression of regret that so many health officers, especially those dealing with scanty data, insist on carrying the calculations of rates to two or even three places of decimals, thus obtaining a completely fictitious appearance of extreme accuracy. In the third chapter statistical graphs are dealt with, and in the fourth enumeration and registration, on which some comments have already been made. The fifth chapter, dealing with estimations of population, has a useful appendix giving a list of all cities with a population of 25,000 or more in 1910. It is interesting to note that in 1850 three-fourths of the population of the United States was native-born, while this can only be said now of about one-half.

In Chapter V., dealing with general death-rates, the question is raised as to inclusion of the deaths of residents who die away from home. Mr. Whipple approves of the action of the American Bureau of the Census in taking the geographical point of view. Apparently he is not acquainted with the method of correction adopted in Great Britain, which gives a more useful and more nearly accurate result for the comparative purposes of vital statisticians, but perhaps such a method would be inapplicable for the present in the United States. Each state is self-contained in respect of its vital statistics, as in other matters; and this means vast differences in efficiency and completeness of registration. There is much of interest in this chapter; the following remark, even though it needs to be slightly safeguarded, gives food for thought:—

> "Unless public health officials learn how to view general death-rates in a proper light—a good way being not to view them at all—they may be surprised and discouraged some day to find that the death-rate is rising."

In another chapter, dealing with specific death-rates, Mr. Whipple discusses the various methods of securing standardised death-rates; and in Chapter VIII. the International list of causes of death is printed, as well as a useful list of occupations.

In subsequent chapters tuberculosis statistics are discussed, the statistics of diphtheria, of typhoid fever, and of cancer. Under the heading of cancer the author quotes the original paper by King and Newsholme in the Proceedings of the Royal Society for 1893, which showed that the balance of evidence was in favour of the view that the apparent increase was merely statistical, a view which has since been strikingly confirmed. Evidently, however, he is not acquainted with the even more recent study of the subject by Dr. T. H. C. Stevenson, which throws additional light on the problem, and necessitates a reconsideration of earlier conclusions.

In dealing with infant mortality statistics the author gives a number of tables as to the relation between infant mortality and type of house, sleeping rooms, ventilation, attendance at birth, education of foreign mothers, age of mother, method of feeding, household duties, and earnings of fathers. He remarks that the vital statistician must train himself to analyse his statistics. In the tables, the subjects of which are enumerated above, there is preliminary analysis galore but no satisfactory teaching; the author has missed an opportunity in not emphasising the point in regard to each of these tables, that the variations in infant mortality may or may not be significant, and what we require to know is that in the compared groups other things are practically equal and the groups really comparable. Probability is discussed in Chapter XII., and correlation and life tables in the next two chapters. There is much useful matter in these chapters, but we doubt whether this information will be directly valuable to health officials. These chapters, and the chapters on the use of medical and demological statistics, strike us as the least satisfactory in the book; their worth would have been greatly increased had the author secured the active coöperation of a medical officer of health who is familiar with the statistical difficulties of his medical work and the way out of them. There are useful appendices to the work, dealing with references, a model law of morbidity reports, and of registration of births and deaths. Finally, there is a table of logarithms.

The book will be found helpful by health officials and by others interested in vital statistics. It is singularly free from real errors, and we trust that it will stimulate the extension and perfection of birth and death registration throughout the United States.

HERMAN'S DIFFICULT LABOUR

Sixth edition, revised and enlarged. By CARLTON OLDFIELD, M.D. Lond., F.R.C.S. Eng., Honorary Obstetric Surgeon to the Leeds Infirmary, &c. London: Cassell and Co., Ltd. 1920. With 198 illustrations. Pp. 573. 16s.

IT is just ten years since the last edition of this book appeared, although it was reprinted in 1912. It has always been a popular book with both teachers and students, and we are very glad to see that the publishers have not allowed it to disappear. As the editor rightly says, it has long been a medical classic, and for nearly a generation a friend in need to many a general practitioner and many a resident obstetric officer. The book owes its reputation to the fact that it was written out of the large and ripe experience of its author, and its teaching has stood the test of time. For this reason the alterations that the new editor has had to make have been relatively few, and he has been able to preserve the salient features and distinctive qualities of the book. There are a number of new illustrations and some of the sections have been added to and partly rewritten, more especially those dealing with Cæsarean section and rupture of the uterus. The section on Cæsarean section has been amplified and the latest results given, as well as the more modern methods of operating. In the treatment of incomplete ruptures of the uterus the Carrel-Dakin method is recommended for the irrigation of the tear and of the uterus to prevent infection, and no doubt this should help to lessen the mortality of these cases. In the chapter on post-partum hæmorrhage there is a good description of the modern method of direct blood transfusion. Apparently the editor's results with gum solution have not been encouraging, but this does not correspond with the experience of most surgeons.

The book retains all its own characteristics, while Mr. Oldfield has added to its value by bringing it up to date, so that it is now, as it always has been, the best possible guide to the student and practitioner in the treatment of cases of difficult labour.

MANUAL OF OBSTETRICS

For Students and Practitioners. By O. ST. JOHN MOSES, M.D., C.M., D.Sc., F.R.C.S., F.R.S. Edin. London: J. and A. Churchill. 1920. With 136 illustrations. Pp. 528. 21s.

THE only excuse which legitimately could be put forward for adding another text-book to the many already existing excellent works on the subject of obstetrics would be that the book is as good as or better than any of its predecessors. We are afraid this can hardly be said for the work under review. It is obvious that the author is quite out of touch with the modern teaching of midwifery, and therefore his book cannot be recommended to any student as a safe guide. For example, we are told that the chorionic villi are covered with a basement membrane on whose surface is a close compact layer of fine-walled cells. The amnion is described as developed by a folding up of the somatopleure, and it is said to cover the developing umbilical cord. Not a word is said of the embedding of the early ovum in the decidua basalis, and the function of the decidua is imperfectly described. The diagram showing the height of the pregnant uterus at the various months of pregnancy is quite inaccurate. A carneous mole is said to be the result of polypoid deciduitis and to be covered with small polypi, which are involutions of the decidual tissue; the author has apparently never heard of a subchorionic hæmatoma. We are told that ovarian gestation has never yet been demonstrated, when already in 1906 Whitridge Williams had described 36 very probable cases, and since that date a number of certain cases have been published. In the account of the treatment of placenta prævia not a word is said of the use of Champetier de Ribes's bag for this condition, and under accidental hæmorrhage the student is recommended accouchement forcé, while plugging the vagina and Cæsarean hysterectomy are not even mentioned. In the section on instruments we are told that the écraseurs which are figured are useful for performing such operations as amputation of the cervix, and the removal of polypi or of the ovaries. One wonders where and when the author can have learnt these things.

The book is not at all up to date and cannot be recommended to the readers for whom it has been written.

THE NUTRITION OF THE FŒTUS

By J. MORRIS SLEMONS. New Haven: Yale University Press. London: Humphrey Milford. 1919. Pp. 50. 3s. 6d.

THE nutrition of the fœtus involves two factors—the peculiar activity of its own organs and the supply of food it receives. The second factor has been brought within the range of direct observations, and in this little brochure Dr. Slemons details the results attained. That the mother's weight increased during pregnancy has long been known, and at one time it was believed that fœtal growth occurred at the expense of the maternal tissues. This is, however, not so, and it has been shown that the food of the mother is sufficient not only for her own needs but also for those of the fœtus. Two theories have been held as to how substances pass through the placental partition which intervenes between the two circulations of the mother and the fœtus. The first, the vitalistic theory, assumes that the placenta digests the food of the fœtus, and the second, the mechanistic theory, supposes that the placenta plays merely a passive role and behaves as a semi-permeable membrane. One fact, at any rate, holds good, and that is that no insoluble substance can pass the placenta. Analysis of specimens of fœtal and maternal blood obtained simultaneously has enabled Dr. Slemons and his collaborators to make some notable additions to our knowledge of the action of the placenta. They have shown that there is a constant equality in the non-protein nitrogen content of the maternal and fœtal bloods, and that in the fœtal plasma there is always a slight excess of the amino-acids, pointing to the placenta being capable of absorbing them and preventing their departure from the fœtus. These observations also show that the nitrogenous fœtal waste products and glucose all pass through the placenta by diffusion. There is, however, a high fat content in the blood of the pregnant woman, a much lower one in the blood of the fœtus, and between the two circulations no interchange of fat or related substances.

This is a very interesting study and a notable addition to our knowledge of the physiology of the placenta.

PAINLESS CHILDBIRTH AND TWILIGHT SLEEP

Second edition. By CECIL WEBB JOHNSON, M.B., Ch.B., Captain, R.A.M.C. (T.F.), late Civil Surgeon and Officer Commanding Station Hospital, Dum Dum, &c. London: Butterworth and Co. Pp. 169.

DR. Webb Johnson has apparently had a considerable experience in administering twilight sleep in India, and this book is a résumé of most of what has been written on the subject and of his own conclusions. We may say at once that he is an enthusiastic advocate of this method of scopolamine-morphine narcosis. The subject is considered at length, and the many objections which have been urged against the method are discussed in detail. It is a pity that the author has not included a complete record of all the cases treated by him, omitting a great deal of the extraneous and unnecessary matter which he has introduced. The whole tone of the book is spoilt by some of the additions, and it suffers from the defect which most of the books on this subject suffer from—namely, that the reader is presented with the opinions of the author unsupported by any facts from which he can draw his own conclusions. It is only by comparing the carefully recorded results of large numbers of cases treated by this method that we shall be able to arrive at a just conclusion. Dr. Webb Johnson is strongly in favour of the complete Freiburg technique, and yet we find that in practice he appears to use the method of fixed dosage not infrequently. Here, again, in the absence of complete details we are uncertain which method has been most commonly employed. In using fixed doses the author, after an initial dose of morphine 1/6–¼ gr. and scopolamine 1/150 gr., or omnopon 2/3 gr. and scopolamine 1/150 gr., gives half-hourly injections of small doses of scopolamine, which he believes are more efficacious and much safer than larger doses at longer intervals. We are led to believe that the author has treated large numbers of cases, but we are not told the actual numbers nor the actual results in any form in which they can be compared with those published by other observers, and for this reason the scientific value of the book is small.

DR. CHAVASSE'S ADVICE TO A MOTHER.

Eighteenth authorised edition. By T. D. LISTER, M.D. London: J. and A. Churchill. Pp. 336. 2*s.* 6*d.*

WE cannot help regretting that this book has been reprinted. It has done useful work in its time, but it evidently has been too heavy a task to revise such a mass of detail when almost every word should have been rewritten. In these days a woman who employed a wet-nurse for her child, and forbade her "to visit her own baby," as recommended on page 33, would be execrated by every decent-minded citizen. If a wet-nurse is employed, she should nourish both her own and the foster-child, and not the latter at the expense of her own. This is by no means the only example of failure in revision, but we are most surprised in view of the recent prominence of the subject to see that two-hourly feeding—10 feeds in 24 hours—should still be upheld in the present edition.

It is easy to understand the anxiety to maintain something of the original form in a book which has been for many years useful in educating public opinion. The author has put a good quantity of new wine into this respectable old wine-skin, so we may, perhaps, hope that the skin will burst, and that the publishers will reward him with a new skin for the next season's vintage.

DIE MEHLFRÜCHTEKUR BEI DIABETES MELLITUS.

Von Professor Dr. W. FALTA, Vorstand der III. Medizinischen Abteilung und des chemischen Laboratoriums des Kaiserin Elisabethspitales in Wien. Berlin und Wien: Urban und Schwarzenberg. 1920. Pp. 388. 50 marks.

SINCE 1898, when Mossé advocated the treatment of diabetes by a diet consisting largely of potatoes, and more particularly since v. Noorden announced his "oat cure" in 1902, a variety of so-called carbohydrate cures for the disease have been described. Although some have had a limited vogue and satisfactory results from their use have been reported by a few observers in selected cases, no universally applicable treatment of this description has yet been found.

In the volume under review Dr. W. Falta of Vienna describes yet another variation of the same theme. Originally a disciple of v. Noorden he has abandoned the claim formerly made by the Vienna school that the success achieved with the oat cure depends upon some property peculiar to oatmeal, and ascribes it rather to the low protein content of the diet and the abundance of starch given. He now employs, therefore, a "mixed meal cure" in which wheatmeal, oatmeal, rice, barley, peas, beans, linseed, maize, millet, tapioca, and potato are combined, at first in the form of gruel and, later, as purées and soups. He contends that the control of acidosis in diabetes is, at least, as important as the limitation of the excretion of sugar, and, as the formation of the acetone bodies on which acidosis depends is related to the intake of protein, and can be prevented by an adequate supply of carbohydrate, it is necessary that the diet should be arranged with these objects in view at any cost. The particular kind of starch employed is not a matter of great importance; what is essential is that it should be given in large amounts and be varied so as to avoid the monotony attached to the original oatmeal cure. Although the allowance of protein is kept as low as possible a considerable amount of fat is permitted. As in the original oat cure the patient is prepared for his carbohydrate days by a series of vegetable and hunger days.

Despite the favourable cases quoted by Dr. Falta in a voluminous appendix, it is doubtful whether his "mixed meal cure" will prove a panacea for diabetes any more than the many other methods of treatment described for the disease. The fact that some cases respond to one form of treatment and some to another of an entirely different character suggests that diabetes is not a single pathological entity always amenable to the same therapeutic measures. Until means are devised for differentiating the various types accurately the most suitable form of treatment for any particular case can only be determined by a process of trial and error, checked by careful clinical and chemical observations, and in the course of this procedure the mixed meal cure should be as worthy of a place as others which are at present fashionable.

ACQUIRED SYPHILIS IN THE MALE.

An Atlas of the Primary and Cutaneous Lesions of Acquired Syphilis in the Male. By CHARLES F. WHITE, M.B., and W. H. BROWN, M.D. London: Bale's Medical Books. 1920. Pp. 32 and plates. 27*s.* 6*d.*

THIS work is the outcome of a photographic record of cases treated at a large venereal hospital during the war. The fact that the authors had at their command so much clinical material—as many as 19,000 cases of syphilis came under observation—renders the record a very complete one. The work is divided into six parts, the first three parts being devoted to Syphilitic Chancres and Soft Sores; the fourth part to Secondary Cutaneous Lesions; the fifth to Late or Tertiary Syphilides; and the sixth to Skin Diseases liable to be mistaken for Syphilis. The letterpress has been purposely kept within narrow limits. The descriptions are concise and clear, two qualities that do not always appertain to descriptions of cutaneous lesions in text-books of dermatology. Special attention is paid to syphilitic chancres and soft sores, since the early recognition of these lesions is a matter of vital importance. To render the illustrations still more instructive they have been arranged for use with a stereoscope, a fact which should certainly assist the reader in obtaining a clear mental picture of the lesions portrayed.

The whole aim of the work is to assist in the formation of a diagnosis. The Atlas is in no way a treatise on syphilis, and does not deal with such subjects as treatments or prognosis. It should prove of great value in assisting the student to obtain a clear impression of the types of lesions commonly seen in a venereal clinic. The Atlas will assist the effort that is being made to obtain earlier recognition of a disease that is fraught with such great consequences to the nation. The photographs from which the plates are prepared have been well selected. Altogether we congratulate the authors on the result of their labours.

THE PHILOSOPHY OF CONFLICT.

And other Essays in Wartime. By HAVELOCK ELLIS. London: Constable and Co., Ltd. 1919. Pp. 300. 6*s.* 6*d.*

THIS is a book to be taken on a holiday. It is a delightful and informing series of essays dealing with subjects literary, sociological, economic, medical, and biological—e.g., Martin Luther, Herbert Spencer, Baudelaire, Joseph Conrad, Cowley, the Origin of War, the Problems of Eugenics, the Unmarried Mother, the Political, Economic, and Psychological Position of Woman, the Drink Problem, Psycho-analysis in Relation to Sex. What more varied collection could the thoughtful physician or surgeon desire as a companion of his leisure, especially when the author writes from a point of view consistently progressive, yet always sane and moderate? The following extracts will but serve to whet the reader's appetite for a closer acquaintance.

War "probably began late in the history of mankind; it developed slowly out of animal hunting ...... above all, it owed its expansion to two great forces, the attractive force of booty and commercial gain in front, and the propulsive force of a confined population with a high birth-rate behind" (53). "A nation with a high birth-rate is not in a state of efficiency. That high birth-rate is the mark of immaturity, defective civilisation, and general inefficiency" (115) The two causes of war "are already decaying. The excessive birth rate is falling, and necessarily falls with every rise in culture. Excessive industrialism has likewise passed its climax, there is no new world left to fight for; and with the regularisation of industrial and commercial activities . . the economic cause of war falls away, and the energy thus released is free for sublimation into other and possibly more exalted forms of human activity" (55). Conflict of the kind that involves violence is not to be "regarded as the eternal and supreme type of conflicts in the world" (62) In regard to Freud, "We cannot understand him, unless we regard him as, above all, an artist" (206). "Truth or fiction, to the artist it is all one, even when the artist is a psycho-analyst, for he is only concerned with truth to his art" (205). "His (Freud's) theories have been proved to be often defective ... yet he enlarged the human horizon" (222). "He has shown the existence of a vast psychic field of which before we had but scanty intimations. The human soul will never again be to human eyes what it was before Freud explored it" (223).

Mr. Nevil Beauchamp, it may be remembered, "liked a bone in his mouth," when choosing his reading, to correct vagrancies and promote healthy activities Mr. Havelock Ellis in this book gives the reader plenty of bones to worry.

WHEELER'S HANDBOOK OF MEDICINE.

Sixth edition. By WILLIAM R JACK, B.Sc, M D. Glasg., Physician to the Glasgow Royal Infirmary Edinburgh: E. and S. Livingstone. 1920. Pp. 561. 12s.

THE principal change which has been made in this popular handbook since the last edition published in 1916 consists in an appendix of eight pages on the medical diseases of the war. This classification is no doubt convenient for the moment; it has helped in the successful attempt to keep the pagination of this edition identical with that of the last, but it is to be hoped that at a subsequent date trench fever and infective jaundice will find their way into the section on specific infectious diseases, while war neuroses will take their place as a somewhat specialised variety of the psycho neuroses of everyday life. While they are exalted to their present importance, and so much is written on treatment by suggestion, it is, perhaps, a pity that nothing is said of the method of "abreaction," which has proved so successful in the hands of Dr William Brown and others. A very few alterations are made in the body of the book, occasional additions being introduced while a new picture showing the position of the images in diplopia now takes the place of a diagram on p 500, which illustrated the action of ocular muscles Some of the minor criticisms offered in our review of the fifth edition have been met, and the value of a widely read manual has, we think, been enhanced

LA TENSION ARTERIELLE EN CLINIQUE.

Second edition. Par Dr. L GALLAVARDIN. Paris. Masson et Cie. 1920. Pp 720. 30 francs.

IN his preface the author claims that this is more like a new book than a new edition, embodying, as it does, all the work of the past decade The size of the volume may seem excessive at first sight, but it contains very little redundant matter. After all, as Dr. Gallavardin observes, it is scarcely an exaggeration to say that sphygmomanometry is to chronic disease what temperature records are to acute disease. The first part of the book is devoted to a study of technique. The author comes down on the side of the tactile method, with a Riva Rocci apparatus, for measurement of the systolic pressure. As for the diastolic figure, he favours either the vibratory or the auscultatory method. He considers that the auscultatory method gives a high systolic reading; presumably it is this that deters him from recommending its use for estimation of systolic as well as diastolic pressure, the plan which is largely adopted nowadays in this country.

After an admirable account of physiological variations in the blood pressure the book passes on to deal with the pathological variations. The section that will arouse most interest, doubtless, is that in which persistent hypertension is discussed. Its relation to renal disease is considered judicially and at length, but the author does not think it possible to state a theory which covers all the facts. The last section discusses blood pressure in various diseases and under the influence of various therapeutic methods.

This is a valuable book of reference, and we wish it could be translated into English. A word of praise must be given to the freedom with which the text has been illustrated by explanatory diagrams.

EFFICIENCY IDEALS.

By THISELTON MARK, D Lit, B Sc London: T. Werner Laurie, Ltd. Pp 127 2s 6d.

THIS little volume, bearing the subtitle "A Short Study of the Principles of 'Scientific Management,'" may be said to reach the average of the large number of books now appearing on the subject. Its author is obviously a keen enthusiast, but he lacks originality and judgment. Insufficient discrimination is made between "authorities," and the attitude of Labour towards scientific management is not adequately appreciated.

THE TRIAL OF HAWLEY HARVEY CRIPPEN.

Edited, with Notes and an Introduction, by FILSON YOUNG, Editor of "The Trial of the Seddons," &c London and Edinburgh William Hodge and Co, Ltd 1920. Pp 246 10s 6d

TEN years ago—apparently on Feb 1st, 1910—Crippen murdered his second wife, known to her friends as Cora Crippen or by a stage name as Belle Elmore He was convicted of murder and sentenced to death on Oct 22nd, after five days' trial at the Old Bailey, and in due course was hanged In the present volume, the latest of the well produced and interesting series of "Notable English Trials," are included a full report of Crippen's trial for murder and of the judgment of the court upon his appeal, a report of the trial of Le Neve, indicted as accessory after the fact and acquitted, and the contents of sundry documents more or less connected with the case. The editor, Mr. Filson Young, in a picturesquely written and interesting, if somewhat gossipy, introduction, refers to the murder as a "*crime passionel*" (sic). No doubt the murder of a wife in order to live with another woman may be so described, and this element, the flight across the Atlantic with a girl dressed in boy's clothes, and the sensational demonstration of the usefulness of the new wireless telegraphy in bringing about the capture of a criminal, excited widespread interest. With all this, however, the principal, if not the only, feature of the case rendering it worthy of inclusion in a series of important criminal trials lies in its medical interest. Scientific evidence hanged Crippen when once the friends of the dead woman had called the attention of the police to her mysteriously sudden and complete disappearance and to the clumsy fictions with which he was seeking to explain it. Certainly Crippen in the disposal of his victim's body had been wonderfully ingenious up to a certain point. He had dismembered it and got rid of head, limbs, bones, and sexual organs so that they were never found, but he had buried under the floor of the cellar at his house in Hilldrop crescent the viscera of the chest and abdomen, in which hyoscine was stated to be traceable, and among fragments of epidermis one was indelibly marked by the scar of an abdominal operation. The gruesome remains submitted to the jury had been in the ground for nearly six months The identification of the scar as a scar, and not a mark caused by the folding of the piece of skin, was in the able hands of Mr. A. J. Pepper, Dr. B. H. Spilsbury, and Dr. T. Marshall. Dr W. H. Willcox explained how he had examined portions of the stomach, intestines, liver, and kidneys, and satisfied himself that an alkaloid present was hyoscine. Dr. A P. Luff corroborated Dr Willcox while medical evidence called by the defence, questi ing the identification of the scar and of the hyoscine, failed to impress the minds of the jury with any reasonable doubt.

Crippen had described himself in the witness-box as a doctor of medicine of the Cleveland Homœopathic Hospital, U.S.A., and his principal business in England seems to have been to sell homœopathic medicines and "remedies," purveyed by a firm known as Munyons. It was in the course of this kind of trade that he claimed, uncorroborated in any particular, to have dispensed in a few months and got rid of the greater part of the five grains of hyoscine, the proved purchase of which he did not deny. Some he claimed to have left behind at his office, and in this, again, he was uncorroborated, as he was in his assertion that homœopathic practitioners recommend the administration of the drug in certain diseases. In a letter to Le Neve, written when under sentence of death, and quoted by Mr. Young from the *Daily Mail*, the doomed man included long arguments as to the identification of the piece of skin with a scar on it. It is characteristic of the psychology of the criminal, confronted with proof of his guilt, to believe that failure of the prosecution to establish one point in its case would involve the destruction of that case in its entirety, and further, would, to quote Crippen's words in his letter, "put him right before the world." The scar was of undoubted importance in proving the identity of the scanty remains found, but it is hardly conceivable that even without the piece of skin in question the case for the Crown would have been withdrawn from the jury. The presence of hyoscine did not identify the remains as those of Cora Crippen, but with them were dyed hairs darker at the roots where the natural colour showed, such as her hair had been observed to be, and portions of a woman's underclothing corresponding with what she was proved to have worn. The case for the Crown was convincing enough, and if anything was wanted to strengthen it, the explanations of his conduct, or the lack of explanation, afforded by the accused in the witness-box, supplied all that was needed.

Reports and Analytical Records

FROM

THE LANCET LABORATORY.

VITMAR (VITAMINE FOOD).

(CALLARD AND CO., 74, REGENT-STREET, LONDON, W. 1.)

THERE is no reason why palatable materials rich in vitamines should not be prepared now we know the sources in which the accessory factors occur in abundance and the methods of retaining their activity. Vitmar is stated to be manufactured by a difficult and delicate process from wheat, bone marrow, eggs, fruit, and sugar. Chemical analysis so far is not able to disclose the actual presence of vitamines, but fat to the extent of 11·64 per cent. was extracted, which showed the presence of phosphorus, a characteristic of both egg fat and bone marrow. The mineral matter, though low, proved to be rich in phosphate. The fats are well emulsified, and there is no reluctance shown by children to taking the preparation. On the contrary, they like it, and that is an important point in regard to a product claiming to contain all three accessory factors—fat-soluble A (growth promoting), water-soluble B (anti-neuritic), and water-soluble C (anti-scorbutic). The presence of fruit juice was confirmed by a positive response to the well-known tests for the organic acids normally contained in it. The moisture amounted to 21·35 per cent. We have received a report by a well-known bio-chemist, in which is set out the vitamine value of Vitmar in experiments made on rats. It would seem from this report that this preparation represents an earnest attempt to consolidate accessory food factors.

ANTI-VERMIN PASTE.

(THE SANITAS COMPANY, LTD., LOCKSLEY-STREET, LIMEHOUSE, LONDON, E.)

The principle on which this anti-vermin paste is designed is, we think, sound, judging from the evidence of practical experience gained in regard to it, and generally from a consideration of its composition. It contains a well-known and proved insecticide, which, however, is present in a solvent. Mere contact with the warmth of the body suffices to volatilise the insecticide, which then does effective work. It is pointed out that "stoving" a man's clothes and washing and shaving him is not a real preventive measure, since when he returns to an infected place he is soon open to further attacks. The plan with this ointment is to smear as much of it as will go on a threepenny-piece along the top band or collar of the shirt, the seam under the arm, the crutch seam of the trousers and the inner seam at both knees, and, if the vermin are on the head, round the lining of the cap or hat. The volatilisation by the warmth of the body of a really effective insecticide from a paste appears to be a business proposition. We have assured ourselves of the composition of the paste, and have extracted and identified the active volatile constituent present. The originator of the paste has had considerable experience in sanitary administration through the war, and there is clearly a field still left open for conquering disease-carrying vermin. The Sanitas Company seem to be putting on the market here a much required preparation.

AMBROSIA MILK AND COCOA POWDER.

(AMBROSIA, LTD., BRIGHTON CHAMBERS, DENMAN-STREET, LONDON BRIDGE, S.E. 1.)

The analysis of this preparation gave the following results:—

Moisture ...	5·10 per cent.	Reducing sugar ...	11·80 per cent.
Mineral matter	3·25 ,,	Protein ...	13·23 ,,
Fat	16·56 ,,		

The mixed dried milk and cocoa makes a pleasant nutritive cup, and the proportion of fat and protein is notable. More than half of the powder is soluble in cold water, which is due largely to the presence of sugar as a sweetening agent.

CHLOROSAN.

(SWISS SERUM AND VACCINE INSTITUTE, BERNE.)

The suggestion is novel that the very interesting substance chlorophyll is likely to help in cases of anæmia and chlorosis. Chlorophyll, of course, is related to hæmoglobin, the former being the medium by which carbon dioxide under the influence of light is absorbed by plants with the ultimate liberation of oxygen, and the latter the medium by which oxygen is absorbed by animals with ultimate liberation of carbon dioxide. In modern terms they both serve as catalysts. Whether chlorophyll releases oxygen in the human system may be open to doubt, and its fate in gastric metabolism would be interesting to determine. We are told that the preparation submitted to us is based on chlorophyll, as the result of experiments and researches by Professor E. Bürgi and his collaborators at the Pharmacological Institute of the University of Berne. Our examination confirmed the presence in the capsules of chlorophyll. The usual spectrum absorption was shown by a solution of the contents, and the mineral matter contained magnesium (particularly) and some iron. It is interesting to note that the hæmoglobin, as we may call it, of plant life contains magnesium as its chief metallic element, while the hæmoglobin of animal life has as its metallic foundation iron.

SEDOBROL ROCHE.

(THE HOFFMANN-LA ROCHE CHEMICAL WORKS, LTD., BERNE, AND 7 AND 8, IDOL-LANE, LONDON, E.C. 3.)

We have referred to this preparation before, but a specimen of a new packing has reached us which gives greater convenience when attempting to control the administration of bromides to the patient. Sedobrol is a combination of bromide of sodium and vegetable proteins. It produces, in fact, a bromide soup made from tablets dissolved in hot water, in amounts controlled by the physician. The saline taste of the bromide provides a "seasoning," which otherwise common salt would be called upon to do, while, of course, the bromide has well-known sedative effects. This administration may have its advantages, but should be conducted strictly at the discretion of the medical adviser.

THE LANCET.

LONDON: SATURDAY, APRIL 10, 1920.

The Medical Research Council.

THE *draft of a Charter for creating the members* of the Medical Research Committee a body corporate, under the style and title of "The Medical Research Council," has received the King's approval on the advice of the Privy Council, and a warrant has been prepared for His Majesty's signature in conformity with the draft. Under the warrant, from the first day of this month the Medical Research Committee, as at present constituted, ceases to exist, while the duties heretofore discharged by that Committee will be discharged, with enlarged scope, altered position, and increased discretion, by the new body. The representations made to His Majesty by the Lord President, the Minister of Health, the Secretary for Scotland, and the Chief Secretary for Ireland, acting as a Committee of the Privy Council, having been accepted, it is now directed that the members of the late Medical Research Committee—namely, Lord GOSCHEN, Mr. WILLIAM GRAHAM, M.P., the Hon. EDWARD F. L. WOOD, M.P., Mr. C. J. BOND, Professor WILLIAM BULLOCH, Dr. THOMAS RENTON ELLIOTT, Dr. HENRY HEAD, Professor GOWLAND HOPKINS, Sir WILLIAM LEISHMAN, and Professor D. NOEL PATON—under the name of the Medical Research Council, shall succeed to the old and the new responsibilities.

The Medical Research Council will have a perpetual succession and a common seal with full power, by and in such name:—to sue and be sued; to enter into contracts or agreements under the direction of the Committee of the Privy Council; to hold and dispose of money and personal property including Parliamentary grants; to accept trusts; and generally to further all the objects for which the Council has been established, and the Committee of the Privy Council appointed. The only limit to the activities of the new body which is mentioned, save that all its acts should be conducive or incidental to the purposes of its establishment, is that purchase or lease of land within the United Kingdom shall not exceed in the whole an annual value of £50,000, a customary enactment when there is question of lands held by a corporation in inalienable tenure. A provision for maintaining the Medical Research Council in touch with the growth of science and with the development of national necessities enjoins that three members of the Council, to be selected as the Committee of the Privy Council may determine, shall retire at intervals of two years; but any member so retiring is eligible for reappointment, thus securing a continuity of special work. Appointments to vacancies, whether casual or otherwise, will be made by the Committee of the Privy Council, after consultation with the President (for the time being) of the Royal Society, and with the members of the Medical Research Council; and, as is usual, those appointed to fill casual vacancies will only hold office for the remainder of the appointed period of those whom they replace. Two members of the Medical Research Council must at all times be members of the House of Lords and the House of Commons respectively, which ensures the legislature being informed intimately, should questions arise requiring discussion in the public interest. The Council will appoint its own chairman, treasurer, and secretary, with the approval of the Committee of the Privy Council, as well as any other officers and servants for administrative purposes. Lastly, there are provisions by which, upon the vote of an absolute majority of the whole of the Council, alterations, amendments, and additions may be made to the Charter.

The Charter will appear to all scientific men to mark a valuable and significant advance in the position of science in this country. Under it the Medical Research Council may be described as a permanent standing subcommittee of the Privy Council, a body whose acting members are principally formed from the Cabinet and whose President is always a prominent member of the Cabinet. The Medical Research Council will thus have direct access to Ministers, and will not have to submit proposals through any intermediary. It will, moreover, work under the immediate dispensation of a Committee of the Privy Council, consisting of the three Ministers of Health of the respective divisions of the United Kingdom, whereby all its plans for the scientific development of medicine and for the direction of research into the channels most fruitful for the health of the people will come at the earliest stage before those who have supreme charge of the health departments of the kingdom. Endless opportunities for misunderstanding and for delay will thus be eliminated. The circumstances in which the help and intervention of the President of the Royal Society may be sought are exactly suitable. From the time of its foundation, or at any rate of its first charter of incorporation, the Royal Society has been constantly relied upon by Government for scientific advice. Looking at its medical work, it has assisted especially to clear up difficulties in connexion with colour-blindness, malaria, Mediterranean fever, and many forms of tropical disease, while it has the duty already of administering annual grants on behalf of Government for the promotion of sci research. The direct association of the Society with the work of the Medical F Council is appropriate, and cannot fail to valuable.

Delayed Salvarsan Poisoning.

THE series of cases of delayed salvarsan poisoning reported by Dr. G. S. STRATHY, the late Captain C. H. V. SMITH, and Dr. B. HANNAH has at first sight a somewhat formidable appearance (see p. 802). Fifty-eight cases from one hospital, of which seven out of the eight fatal cases occurred within about five months, would represent a serious state of affairs if it were typical of the experience of military venereal hospitals, or of the hospital in question for more than a limited period. It is clear, however, that this series provides another example of the local and temporal concentration, the occurrence in groups or "outbreaks," characteristic of the incidence of the cases of this form of delayed poisoning which have been reported during the war. As in *the case of* trinitrotoluene poisoning, which presents many points of rather suggestive similarity, this occurrence of cases in groups, resembling small epidemic outbreaks, has naturally raised the question of an intercurrent infection. The possibility that specially toxic batches of the arsenical preparations were responsible has also naturally been suggested; just as the suspicion arose that certain kinds of trinitrotoluene were peculiarly dangerous. It will be seen that the authors of this paper, with apparently good reason, discount all such possibilities, and attribute the *unfortunate experience* to an unwise persistence in intensive treatment without due regard to or search for the signs of susceptibility in certain patients.

Doubtless all these possibilities will be fully discussed in the further report which has been promised by the special Salvarsan Committee, appointed by the Medical Research Committee in 1918. Meanwhile, it is *important* to bear in mind that the outbreaks of such poisoning, taken altogether, represent a minute proportion of the total number of cases receiving this treatment in military hospitals *during the* war. Considering the nature of the problem with which the military uthorities were faced—the large number of cases e treated, the relative novelty of the treatment n war broke out, and the urgency for such nsive administration as would return a man to ty in the minimum time—the number of cases f serious trouble seems to have been remarkably mall. At the same time it is important that full se should be made of the experience afforded by uch cases as have occurred, with a view to the omplete elimination of danger from a treatment which has established itself as, beyond comparison, the most effective at present available for syphilis. It is therefore of special value that the authors of the paper are able to indicate the precautions which they found effective in detecting and forestalling danger, and the treatment by which, after the first eight cases had proved fatal, they were able to restore the succeeding 50 affected patients to health. Their method of detecting the first signs of liver atrophy by means of the X rays appears to be novel. It will be seen that they regard the condition with which they deal as essentially a delayed *arsenical poisoning*, and quote an interesting case in which a somewhat similar condition was produced by Fowler's solution in a non-syphilitic patient. The interest of the latter case, however, must be largely attributed to its rarity. It is very probable that others have laid too much stress on the organic part of the salvarsan molecule in considering the evidence of its remote toxic action; but to speak of the effect simply as "delayed arsenical poisoning" is surely to swing rather too far in the other direction. The condition has, indeed, some features in common with that which may be produced by inorganic arsenic; but, as indicated above, it has also points of similarity to those which have been found to follow persistent absorption of certain organic compounds containing no arsenic.

◆

The Value of Debate.

WE have received recently complaints from th who have been invited to address meetings medical societies, and societies of allied bear that the audiences who assembled have been scanty that the main object for the delivery of address was frustrated from the beginning, in t no sort of representative debate could poss ensue. These complaints have reached us regard to meetings of *different sections* the Royal Society of Medicine, as well in regard to other societies of less scien standing, but as some of these latter bodies ar wider scope it might have been expected that t assemblages would appeal to a greater numb persons. This seems not to be the case, *gatherings at the Royal Institute of Public He* for example, being as often as not very s Such a situation is every whit as vexatious for officials in charge of the meetings as for lecturers, and the position should be conside without any suggestion that the fault can attributed more to one side than to the oth but solely with a view to the remedy of wha now a waste of time and of opportunity.

The main object which a lecturer should have addressing these meetings is the stimulation o debate, for if publicity only is desired this will *obtainable in* an indefinitely larger measure b issue in a journal. Experience has shown ove and over again exactly what it might have bee expected to show—namely, that a keen debate of surgical, medical, or pathological subject, which i topical or which presents generally *felt* obscuritie in diagnosis or treatment, is followed by some concrete piece of progress. When a subject needs debate for the reasons just indicated, and when those present, speaking *from personal* experience, shape the controversy towards the real points of difficulty, practical therapeutics take a step forward. The enormous difference between the written and the spoken word then appears, and men who in attempting to settle their differences by correspondence would remain to the end at variance, find themselves, probably to their surprise, in accord over many essentials, and ready to allow that what is left over for quarrel is largely not worth quarrelling about. In a debate a man can re-state his position, and in some new form the details which previously had puzzled his adversaries may become the arguments for the making of friends. And this charming situation is reached in three minutes, and reached without reservation, while three months spent in correspondence would have produced no real agreement. There is no necessity to labour this point. Everybody knows that a well-guided discussion is the way either to arrive at the truth or to construct the methods by which the truth may be arrived at; and accordingly everybody will regret any widespread feeling that it is not worth while to debate a medical subject at a learned society because the audience, neither in quality nor quantity, is likely to provide a useful discussion. Yet this is exactly what may happen if the average of unsuccessful gatherings grows larger.

The Royal Society of Medicine, said Sir Arbuthnot Lane in a recent speech, is the best medical society in the world; and we do not think it is British swagger to claim that no other learned body is so representative of the medical science of its country, or provides in so orderly a manner that every section of that science should receive proper recognition and proper opportunities, both for threshing out difficulties in its specialty and for calling in other sections to assist in its discussions. Because the Royal Society of Medicine is so strong and so well managed, we have the less hesitation in suggesting that the authorities of the Society should look closely into this subject of ill-attended debates, and should arrange that they should occur as infrequently as possible. Perhaps there should be a more rigorous scrutiny of subjects which are proposed for papers; and perhaps there should be a more efficient manner of securing an audience. We feel sure that if it is admitted that there is at present something wrong, we shall not have long to wait for steps to right it.

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Military Training as a Panacea.

The report upon the physical examination of men of military age by National Service medical boards, which we have been studying from week to week, gives the material for a rough physical census of Great Britain. There has never been a real survey of man-power in the United States of America. Even the recording of births has not yet become a practice universal throughout the federation, and the recent war did not come so closely home there as to necessitate the enlistment of every moderately healthy male person. But much knowledge came to hand during the systematic examination of the draft in 1917–18, and Dr. Merritte Ireland, now Surgeon-General of the United States Army, uses this knowledge to form an estimate of the physical and hygienic benefits of military training, which appeared in the *Journal of the American Medical Association* for Feb. 21st, the last issue to reach this country. Dr. Ireland tells us that among a total of nearly five million men examined for the Army, Navy, and Marines, 47 per cent. were found to have physical defects and 21 per cent. disabilities of sufficient gravity to lead to rejection. These have not yet been numerically classified as a whole, but a large sample of the early draft showed the percentage incidence of defects to be somewhat as follows: Flat-foot, 11; venereal diseases, 8·6; hernia, pronounced or latent, 4; defective vision and defective growth, each 3½; organic heart disease, 3; tuberculosis, 2·5. Dr. Ireland would have us know that the high venereal rate was due to infection prior to enlistment, so that the whole of the disabilities tabled may be regarded as the natural result of present-day American civil life.

Regarding the 53 per cent. who were accepted as fully meeting the physical standard laid down for enlistment, even with them all was not well. On the arrival of the recruit at camp the inspectors reported over and over again on the stream of awkward, narrow-chested men with flabby muscles, and often with a stoop; these formed a marked contrast to the bronzed, erect, broad-chested soldiers of fine muscular development and alert, self-confident air, who presented themselves for examination before demobilisation, and who were the same persons. Military training added 15 to 20 pounds of weight to the average recruit, the gain being regarded by Dr. Ireland as due almost entirely to muscular tissue. He speaks of the low record for venereal disease of the American army in France, and of the effect of the discipline of military life, as a whole, in producing better material for citizenship. The article ends with an eloquent plea for universal military training in order to give an opportunity of a physical survey each year of the youth of the land, with a view to the detection and remedy of physical disability. No other class of men, to quote Dr. Ireland's words, have the vision, as medical men have, to see the good that would result from such universal training.

But military training is not the only panacea which has been suggested, even in America, to attain this very desirable end. For one thing it often comes too late; at 19 years of age much of the harm arising from faulty habits of life is already done and cannot be remedied. Fresh air, exercise, cleanliness, rest, regular meals, and careful supervision are the remedial factors in the training of the recruit. They are also the essential conditions for the upbringing of the child, and, to quote Sir George Newman's recent Memorandum to the Minister of Health upon the prac of preventive medicine, they are as certain in their beneficial physical effect as they are conducive to the creation of a mental atmosphere favourable to the opening mind. Applied early in life, these things become part of a child's instinctive equipment. Understood thus they form a hygienic education which turns out hygienic graduates who do not require to cram for a recruiting examination, or at most need a repetition course. In this country the boy-scout movement has already done wonders in the physical and mental education of the juvenile population. The syllabus of physical training issued in 1919 by the Board of Education may do as much when it is fully applied. The ordinary conditions of life and upbringing should fit the adolescent for the struggle of life as well as, if need be, for the field of battle.

Annotations.

"Ne quid nimis."

THE MEETING OF THE BRITISH MEDICAL ASSOCIATION AT CAMBRIDGE.

THE annual general meeting of the British Medical Association will be opened at Cambridge by the President, Sir Clifford Allbutt, Regius Professor of Physic in the University, on Tuesday evening, June 29th. The Representative Meeting will begin on the previous Friday morning.

The Section of Neurology and Psychiatry has completed its preliminary arrangements. On the morning of Wednesday, June 30th, a discussion on the Early Signs of Nervous Disease and their Interpretation will be opened by the President of the Section, Dr. Henry Head. A discussion on Dementia Præcox and its Relation to other Conditions will be opened by Dr. Bernard Hart on Thursday morning, and on the following morning Dr. T. A. Ross will introduce a discussion on Psychotherapy, to which numerous speakers have expressed their desire to contribute. A series of demonstrations in the Medical Buildings will be given on one afternoon, and on another microscopical and other demonstrations will be given in the Physiological and Psychological Laboratories.

The proceedings of the Section of Pathology and Bacteriology are also arranged. The Section will devote the first morning (Wednesday, June 30th) to morbid anatomy, when a discussion on Atrophy of the Liver will be introduced by Professor Stuart McDonald, of Newcastle. The morning of July 1st will be given to experimental pathology, when Dr. J. A. Murray, Director of the Imperial Cancer Research Fund, will open a discussion on the Present Position of Cancer Research. The third morning (July 2nd) will be given to bacteriology, and Dr. J. A. Arkwright, of the Lister Institute of Preventive Medicine, will open a discussion on the Bacteriology of Cerebro-spinal Fever. A collection of specimens to illustrate the three subjects will be shown. The afternoon of each of the three days will be devoted to a meeting of the Pathological Society of Great Britain and Ireland; details of the papers to be read and the demonstrations to be given will be published later.

RESIGNATION OF THE MINISTER OF HEALTH FOR IRELAND.

OUR Dublin Correspondent writes: "The resignation by Mr. I. Macpherson of the Chief Secretaryship for Ireland has terminated the tenure of the first Minister of Health for Ireland. Beyond the fact that he was Minister of Health, and thereby established a precedent, it can hardly be claimed that the late Chief Secretary made any lasting mark upon health matters in Ireland. His housing schemes appear to have been stillborn. It is true that he sent encouraging messages to the Irish Public Health Council, suggesting that that body should devote its attention to devising a radical scheme of reform; but, like a more famous pro-Consul, he has not stayed for an answer. When the answer is ready it will, no doubt, depend on the will of his successor whether the scheme will bear fruit or not."

MENINGOCOCCI IN THE PETECHIÆ OF CEREBRO-SPINAL FEVER.

IN the *Journal of the Royal Army Medical Corps* Lieutenant-Colonel Robert Muir has reported two cases in which the interesting observation of the presence of meningococci in the petechiæ of cerebro-spinal fever was made. He refers to the fact that war experience showed that meningococcus septicæmia is much more frequent than was supposed; numerous cases without meningitis have been recorded and meningococci have been demonstrated in blood films made during life. The finding of organisms in the petechiæ is, therefore, not surprising. The meningococci may occur in large masses, leading to blocking of the minute vessels and thus to hæmorrhage. But it is not suggested that all petechiæ are so produced; they may also be the result of toxic action, as is generally supposed.

An American private, aged 26 years, was admitted to hospital from a troopship on Sept. 29th, 1918, as convalescent from influenza. Progress was satisfactory till Oct. 4th, when at 8 A.M. he had an attack of grea restlessness. The temperature was 103·8° F., and ther was an abundant petechial eruption on the trunk an limbs. He died at 10.45 from rapid heart failure. Th necropsy showed no trace of meningitis, and meningococci could not be found, by culture or microscopi examination, in the brain or cord. In both lungs wer a few patches of recent pneumonic consolidation, partl hæmorrhagic. The spleen was considerably swollen and soft. Films made from the petechiæ showed Gram-negative diplococci in considerable number, mostly lying free, but some within leucocytes. Cultures from the blood post mortem gave an impure growth in which Gram-negative diplococci were present. They were also found in films made from the pneumonic patches.

In the second case another American private, aged 23 years, was admitted convalescent after influenza from a troopship on Sept. 29th, 1918. He suffered from cough with purulent sputum and occasional epistaxis On Oct. 5th, at 2 A.M., he had an attack of vomiting At 7.30 a purpuric eruption was noted on the face and trunk. He rapidly sank and died at 9.55. The findings at the necropsy were closely similar to those of the previous case. Films made from a petechia showed numerous Gram-negative diplococci both inside and outside leucocytes. Sections of the petechia showed the organisms in large numbers within the minute blood-vessels. The meningococcus was cultivated both from a petechia and from blood taken from a vein in the arm.

Similar observations were made by Netter and Salamier in 1916. They described two cases of cerebro-spinal fever in children, one without meningitis, in which Gram-negative diplococci, presumably meningococci, were found in films made from the purpuric spots. Several writers have noted inflammatory reaction around the vessels involved. In connexion with the presence of meningococci in the petechiæ of cerebro-spinal fever, it is of interest to recall the fact that typhoid bacilli have been found in the rose spots of typhoid fever.

BREAD ABROAD.

IN view of the intention of our Government to reduce the bread subsidy in the coming financial year by 45 millions, which involves a rise in the price of bread to the consumer of 2½*d.* per loaf on April 12th, the following paragraphs taken from the *Economic Review* (March 31st) dealing with the bread position in Austria, France, and Germany are of interest.

AUSTRIA.—*Increased Price of Bread.*

The Lower Austrian Government has increased the price of bread by Hr. 28 per loaf as from March 7th. Bread will now cost Kr. 5.60 per loaf, as against Kr. 2.40 at the beginning of the year. (*Neue Freie Pr.*, March 4th.)

FRANCE.—*New Bread Prices.*

At a debate in the French Chamber on the price and supply of bread, it was stated that for the last three years the State had been losing Fr. 4 milliards a year on bread. The actual price of bread should be Fr. 1.50; the Government was taking very moderate action. The number of persons to whom cheaper bread would be granted had been greatly increased by a new decree; one-quarter of the consumers would pay a reduced price. The wheat deficit was so great that the import would have to amount to half the consumption. A fleet of 2 million tons would be required to transport it. The decree increasing the price of bread as from March 15th was passed by 475 votes against 68. (*Débats*, March 14th.)

As from March 15th the retail price of plain and fancy bread in Paris is as follows:—

80 g., Cent. 10; 180 g., Cent. 20; 270 g., Cent. 30; 370 g., Cent. 40; 450 g., Cent. 50; 500 g., Cent. 55; 550 g., Cent. 60; 650 g., Cent. 70; 750 g., Cent. 80; 850 g., Cent. 90; 950 g., Fr. 1; 1000 g., Fr. 1.05.

Fancy loaves weighing at least 700 g. and not more than 80 cm. long, Fr. 1.05 per loaf; rolls weighing from 70 to 80 g., and not more than 25 cm. long, Cent. 20. Delivery, Cent. 5 per loaf.

Flour sold to customers in the ratio of 50 g. per person per week, Fr.1.50 per kg. (*Débats*, March 13th.)

GERMANY.—*Increase in the Price of Bread.*

Owing to the large increase in the prices of coal and yeast the Greater Berlin Food Committee has raised the price of the 1900-g. loaf from March 15th to Mk.2.65, and of the 1600-g. invalid's loaf to Mk.2.55. (*Deut. Allg. Ztg.*, March 9th.)

Dr. Hans Guradze, of Berlin, gives in *Jahrbücher für N. u. St.* (February) tabulated statistics of the prices charged for wheaten and rye bread in Berlin during 1919.

It will be seen from these figures that the most serious advance in the price of bread is in Austria, while the situation in France is not very agreeable when it is officially stated that the wheat deficit is so great that the import would have to amount to half the consumption and "a fleet of 2 million tons would be required to transport it." This country may be grateful to its food administrators who have maintained a bread-supply throughout the war and who do not now propose, in spite of reducing an enormous subsidy, an alarming advance in prices in the future. According to the journal quoted above, frauds are being perpetrated on the public in Madrid by means of short weight of bread. The kilogramme loaf, we are told, rarely weighs 950 g. and not often more than 860 g. As the daily consumption realises 200,000 kg., the shortage amounts to 20,000 kg., representing a loss to the public of about 13,200 pesetas per diem value in bread. This statement is remarkable, since short weight is much more easily checked than are sins of adulteration.

LOCAL INJECTIONS FOR GOITRE.

Dr. J. E. Sheehan, of New York, published in 1917[1] a report of 17 cases of goitre treated by injections into the gland of carbolic acid, tincture of iodine, and glycerine in equal parts. In the *Journal of the American Medical Association* for Jan. 10th, 1920, Dr. J. E. Sheehan and Dr. W. H. Newcomb, both of whom are instructors in the nose and throat department of the New York Post-Graduate Hospital and Medical School under Professor Beaman Douglas, report a further series of 80 cases injected in a similar way. They have been greatly interested in this form of treating diseased thyroid glands, as a means of relieving or curing the pathological condition, during the past five years. Through the courtesy of Professor Douglas they have been able to observe all cases of goitre coming into the nose and throat department. Eighty cases of all forms of goitre have been treated during the past two years with the combination described above, five drops being injected into the most prominent part of the gland, the process being repeated every five days or so. They state that the object of the treatment is to produce an inflammation which eventually causes a fibrosis in the gland and an obliteration of that part of the gland injected. Such injections are said to be especially favourable in the ordinary parenchymatous goitres of young women. Of 55 patients of this type so treated 76·4 per cent. were cured. In 14 toxic cases relief was afforded in 80 per cent. The treatment was useless in the cystic or colloid form. In fact, in these cases the authors state that if treatment be persisted in it may do harm, causing a sudden enlargement of the gland which may seriously interfere with respiration. In suitable cases—that is, in all but the cystic or colloid form of goitre—it quiets the heart's action, improves the appetite, has a favourable effect on metabolism, stays emaciation, and reduces the mental irritability. It is the custom of Dr. Sheehan and Dr. Newcomb to inject with this mixture all goitre cases which are to be operated on, as the relief of the toxic symptoms aids appreciably in the success of the operation. The procedure is stated to be a safe one if the technique is not at fault.

HOME HELPS.

AFTER skilled help at the confinement—and not very far after, moreover—comes next in importance help in the home to relieve the mother of the anxieties of household management during the first few weeks of the new life. It is perhaps impossible for anyone except the mother herself to realise the intolerable burden which cleaning, cooking, sending the children well-groomed to school, and the hundred tasks of the house, mean to a woman already fully occupied with the manifold minor—but none the less straining—anxieties and accidents inevitable in the nursing of a young infant. There can be no doubt that, second to a midwife or doctor in her time of trial, the greatest gift to the working mother would be home help during the time of recovery. Such help is, of course, now a recognised public health measure, thanks to the initiative and foresight shown by the Local Government Board in its well-known Memorandum of August, 1918, in which the various aspects of maternity and child welfare were epitomised. It would be interesting to know how many local authorities have so far made use of their opportunities. It is not, perhaps, fair to judge by the annual reports of medical officers of health for 1918, which are all that are so far open to inspection. These came too closely on the heels of the Memorandum in question for much action to be possible. At any rate, it is apparent that action did not in fact follow, for, in a perusal of 26 consecutive annual reports, taken at random, of counties and of large towns and cities, not a single instance was found in which the subject was discussed; and in only one was the matter mentioned at all, and then rather as a pious aspiration than as a practical problem. There is this to be said in extenuation of the omission; it is not easy to propound a working scheme for the purpose. Is the home help, in the first place, to be a whole-time or a part-time servant of the authority? From every point of view, except perhaps that of cost, the whole-time help is preferable. How is she to be obtained? The type needed is to be found among the cronies of the mothers who attend welfare centres, and probably the best course is to use the welfare centre as an intelligence department for the purpose. Through it the chances of finding the suitable type are reasonably great. The training in simple cooking, household cleaning, washing, and marketing—in which the help-elect is probably already no mean performer—can best be done through the welfare centre. It is clearly best that she should pivot on the welfare centre at which many of her clients will attend rather than be attached to some more detached section of the public health department. The financial question may be a difficulty; it is unlikely that the whole of her salary can be met by the contributions of patients, even with the institution of a form of insurance in the case of all expectant mothers at the centre. But the financial is not the greatest difficulty. The kernel of the problem is the mother herself, who in many cases will, after a day or two of intense relief, resent the invasion of her territory and the exploration of her pet cubby-holes by a strange woman. A successful scheme must take into account the psychology of home-life.

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[1] New York Medical Record, Oct. 6th, 1917.

SYPHILIS OF THE BLADDER.

ACCORDING to Dr. Loyd Thomson,[1] of Hot Springs, Arkansas, the literature on syphilis of the bladder is comparatively meagre. Of 84 cases on record only 58 are accepted by him as authentic. He thinks it probable, however, that this number does not represent the true incidence of the condition, and that it would be more frequently found if more attention were paid to it. He suggests that if the vesical mucosa of every case of syphilis in the eruptive stage were examined with the cystoscope involvement of this viscus would be found in a large percentage of cases. In the early stage of syphilis there is more or less congestion of the mucous membrane of the bladder resembling the diffuse eruption sometimes seen in the mouth and pharynx, or there may be a distinct papular eruption with or without erosion or ulceration. In the later stages the most frequent type of lesion is the ulcerating gumma, which may be either single or multiple. The usual site of the lesions in the early or late stage is round one of the ureteral orifices, but other portions of the bladder wall may be attacked. In the early stage the most frequent symptom is frequent and painful micturition, hæmaturia being the predominant manifestation of the late stage, and often the only one. There is, however, nothing characteristic in the symptoms or cystoscopic picture of syphilis of the bladder, and the diagnosis must rest upon the history, the presence or absence of the manifestations of syphilis, including the Wassermann reaction, and upon the result of specific therapy. The prognosis, on the whole, is good. Only 4 of the 58 cases died, death being due to the malignancy of the syphilitic infection. In all the other cases complete recovery followed the use of specific remedies.

CRUSADE AGAINST ANKYLOSTOMIASIS IN BENGAL.

THE prevalence of hookworm disease amongst the native population of Bengal and its very serious results in deterioration of health are well-known facts. Within the past year consideration of the whole subject has resulted in the initiation by His Excellency Lord Ronaldshay, Governor of Bengal, of an organised campaign for control and prevention of the disease. The work has been undertaken by Dr. C. A. Bentley, Sanitary Commissioner, with the assistance of Dr. Borland McVail, Dr. R. G. Griffin, and Dr. S. P. Gupta. One of these officers has charge of the organisation in respect of mills, factories, and railways; another in respect of tea-gardens and coal-mines; and the third in respect of municipalities and police in Burdwan. The nature of the crusade can be illustrated by reference to the first of the three sections—that of mills and factories. The prime object was to secure the interest and support of both employers and employees. In March, 1919, there was held a meeting of superintendents and managers of the mills, together with medical men and senior employees. The gathering was presided over by the chairman of the Jute Mills Association, and was addressed by Dr. Bentley, who pointed out the prevalence of the disease and its effects, not merely direct in the way of ill-health, but also financial in the loss resulting from deterioration of physique amongst mill-workers. It was explained that the line of attack would be by the institution of laboratories at which the necessary microscopical examination of infected material could be made, and treatment adopted for those found to be affected. This proposal was favourably received, premises for a laboratory were provided at one of the mills and work has been begun.

In initiating the campaign account had to be taken of the suspicions and susceptibilities of the workers, who, it was found, were apt to suppose that discovery of their being infected with the disease would lead to dismissal from employment. At first the scheme was confined to microscopic examination to ascertain the degree of prevalence of ankylostomiasis, and even this had to be carried on with discretion. In the early examinations, only about 50 per cent. were found infected, but this was probably due, in part, to the inexperience of some of the microscopists, as indicated by the fact that in one mill the percentage of positive cases rose from less than 50 in April to over 70 in July and August. Treatment as a sequence to diagnosis was gradually instituted, and, as weeks passed, reluctance to accept it diminished. For some months only males were dealt with, but later on a few females were treated, and the number of these also is increasing. As the scheme extended from one mill to another, its details became modified, and instead of endeavouring to ascertain the percentage of prevalence, attention was concentrated on examination and treatment of cases which the mill doctors knew to be suffering from debility. In that class the cause of debility was in some mills found to be hookworm in more than 90 per cent. of the cases. In addition to the training of the laboratory staff, mill doctors were also brought into the scheme and have aided in the work. On one of the railways two laboratories have been opened under the charge of Dr. T. H. Bishop, working in connexion with the central department, and various difficulties are being overcome. At one mill the workers belonging to the weaver caste were the subject of investigation, and though these regularly wear boots and are therefore less exposed to risks, 35 per cent. were found infected.

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[1] The American Journal of Syphilis, January, 1920.

Amongst mill-workers the prospects of success or failure of a crusade must obviously depend in great measure on the goodwill, or indifference, or opposition of those responsible for the management of the mill, but the immense importance of the treatment should surely suffice to enlist cordial support. Now that the schemes have been fairly initiated, the work should be taken up by the mills themselves in respect of the provision of apparatus and staff, as, even where labour is plentiful, it is important that the standard of health should be high. Until the natives can be educated into cleanly habits, so that the ground shall not be constantly the place of deposit of infective material, the action taken by those engaged in the crusade will have to be constantly maintained at a high level; under spasmodic activity the benefit is likely only to be temporary, as the conditions favouring ankylostomiasis will continue to provide new cases of the disease or renewed infection of those who have already been cured. The ultimate object must therefore be the establishment of sanitary habits, and if that is accomplished there may then, but only then, be entertained a hope of relaxation of the efforts being made. At present, of course, extension of the operations of the scheme is the urgent requirement. In the meantime, the scope for direct individual benefit by means of treatment of individuals is almost unlimited. India is working towards an increasing degree of self-government, and if Bengal is by-and-by to take its place as a centre of industrial activity—if, for example, shipbuilding is to be established on a great scale on the Hoogly—it is of the first importance that the population from whom the class of workers would have to be drawn should be protected against this definitely preventable infection.

RECENT FRENCH WORK ON SYPHILIS.

IN the *Paris Médical* for March 6th Dr. Milian gives an excellent review of recent work on the subject of syphilis. Levaditi and Marie have supported the contention that general paralysis is due to a special variety of treponema by means of further animal experiments. A longer incubation period is required for the development of lesions in the rabbit after inoculation with the "neurotropic" virus than that required after inoculation with the "dermotropic" variety. The appearance of the lesions is, moreover, somewhat different in the two cases. Inoculation with the dermotropic virus produces typical infiltrated nodules, whereas the neurotropic treponema causes widespread and superficial lesions, surrounded by a zone of infiltrated skin. The two varieties of virus would appear also to differ in their virulence, the injection of the dermotropic variety into monkeys being followed by the appearance of a typical chancre, whereas the neurotropic treponema (after passage through a rabbit) is non-pathogenic to monkeys. The authors explain these findings by means of the hypothesis that the treponema of general paralysis is a different variety to that found in syphilitic lesions of the skin, mucous membranes, and viscera. Dr. Nicolan, of Bucarest, has made extensive examinations of the cerebro-spinal fluid during the primary stage of syphilis, and has found changes occurring as early as the fifteenth day. As a rule, however, these changes were not noted before the third week. In connexion with these changes he calls attention to the importance of noting any inequality of the pupils that may be present. Out of 18 cases of primary syphilis *with* spinal lymphocytosis 11 showed inequality of the pupils, whereas amongst 33 primary syphilitics *without* cerebro-spinal fluid changes only 5 instances of unequal pupils occurred. Lacapère, Fournier, and Guenot have all contributed to the subject of the prevention of syphilis by means of prophylactic injections of arsenobenzol. Azémar has reopened the question of the administration of arsenobenzol by the rectal route. He has shown that it is rapidly absorbed by the detection of a considerable quantity of arsenic in the urine two hours after the enema has been given. The quantity of arsenic found in the urine increases up to the third day, and then disappears by the sixth. As compared with that observed after an intravenous injection the elimination is later, more abundant, and less prolonged. In the case of an intravenous injection traces of arsenic may still be found in the urine 15 days after the injection. The therapeutic effects of intra-rectal medication are therefore less rapid, less profound, less constant, and less durable than those obtained by the intravenous route. Rectal injections of arsenobenzol may possibly be of use during the latent period of syphilis, or as a preventive measure. They are not advisable when active clinical manifestations of syphilis are present. Sicard recommends the administration of "914" in daily doses of 0·1 to 0·2 g. until a total of 8 or 9 g. has been administered. He considers that by this method the ill-effects occasionally following the administration of this drug are minimised, and recommends its employment in cases of hemiplegia. Dr. Milian discusses the question of jaundice occurring during a course of arsenical treatment, and comes to the conclusion that in the majority of cases the jaundice is the result of the disease rather than of the remedy. He points out that similar cases are observed during treatment with mercury alone. Arsenical dermatitis has likewise been the object of careful study by the same author. Two different categories of dermatitis have been distinguished. The first occurs about nine days after the first injection, and appears as an erythema, scarlatiniform, morbilliform, or polymorphic in type. The second occurs towards the end of course, when the patient has received a quantity of arsenic, and is in the nature of a dermatitis exfoliativa. The latter is of more serious import and necessitates the suspension of any further treatment with arsenic.

IN HONOUR OF DR. WILLIAM WELCH.

Dr. W. H. Welch, professor of pathology in the Johns Hopkins University, Baltimore, reaches his seventieth birthday this month, and the medical profession of America consider that the occasion ought not to pass without some expression of admiration for one who has long stood in the position of a leader. To many of his friends it has seemed that a worthy expression of affection would be the preservation in suitable form of the chief contributions from Dr. Welch's pen. These are scattered through a great variety of publications, and are more or less inaccessible. It has accordingly been decided to bring together and to publish in three volumes his papers and addresses, which strikingly reveal the great part he has played in the development of medical science and medical education. To place the project upon a sound financial footing it has been decided to invite his friends and former pupils to unite in making possible the publication of his work. A set of three volumes will be issued by the Johns Hopkins Press, under the editorial supervision of a well-chosen committee, to subscribers at $16.50, which is less than the estimated cost. Each copy will be numbered and assigned in the order of subscription. The edition will be restricted to the number subscribed. The following distinguished members of the medical profession of the United States form the committee of publication: John J. Abel, Lewellys F. Barker, Frank Billings, Walter C. Burket, William T. Councilman, Harvey Cushing, John M. T. Finney, Simon Flexner, William S. Halsted, William H. Howell, John Howland, Henry M. Hurd, Henry Barton Jacobs, William W. Keen, Howard A. Kelly, William G. MacCallum, William J. Mayo, Ralph B. Seem, Winford H. Smith, William S. Thayer, J. Whitridge Williams, Hugh H. Young.

THE summer session at the Brompton Hospital for Consumption, which begins on April 13th, includes a daily series of afternoon demonstrations, the aim of which is to present the student to the problem of tuberculosis systematically, and to give him an opportunity of seeing the results of sanatorium and other treatment and of discussing with the staff the causes of failure in this or that case. The teaching will not select rare or curious cases, but will concentrate on the ordinary case in all stages of the disease. Details will appear in our Medical Diary.

AT the election to the Council of the Royal College of Surgeons of England, to take place on July 1st next, there are three vacancies upon the body. Two of those retiring from the Council by rotation—namely, Sir Anthony Bowlby and Sir D'Arcy Power—will offer themselves for re-election; while the other Fellows who are candidates for seats are: Mr. H. S. Pendlebury, surgeon to St. George's Hospital; Mr. W. Thelwall Thomas, surgeon to the Royal Infirmary, Liverpool; Mr. J. H. Fisher, ophthalmic surgeon to St. Thomas's Hospital; Mr. F. J. Steward, surgeon to Guy's Hospital; and Mr. Victor Bonney, assistant obstetric surgeon to the Middlesex Hospital.

EXPERIMENTAL MEDICINE AND THE VENEREAL DISEASES.[1]

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IN this discussion, related to the so-called venereal diseases—syphilis and gonococcus infections—an attempt will be made to keep constantly in view their public health aspects. Mention of economic, social, or moral measures will be limited to those which have some important bearing on the prevention of these diseases, and likewise references to education or methods of treatment will stress the benefit to the public rather than to the individual. It is necessary at the outset to have such an understanding, because the details of combating these diseases are necessarily concerned largely with that No-Man's Land between the views of the old-time physician who says there is nothing to do about venereal diseases except treat patients who have intelligence enough to apply, and the old-time moralist who says that these diseases are essentially a check upon sexual immorality and that any measure should be opposed which in the least degree may be interpreted as lessening the maintenance of moral standards. The limitation of this paper in this way does not imply, however, that sex-education, moral and religious training do not have on their own account social values far more important to the welfare of the nation than the complete elimination of venereal diseases could possibly have. The paper is still further limited largely to the experimental medicine phase of developing new methods of combating these diseases.

The Dissemination of Syphilis and Gonorrhœa.

A review of our knowledge upon which may be based a study of the prevention of venereal diseases shows that syphilis and gonorrhœa in their various medical and surgical manifestations are actually or potentially communicable diseases due to identified organisms; the methods of transmission are known, and practical laboratory and clinical technique has been worked out for diagnosing each of them; they are widely prevalent throughout the world among individuals of every race, sex, age, and condition of people; they find their chief opportunity for dissemination in the intimate personal contact of infected individuals with other individuals who are susceptible; they are largely but not exclusively transmitted through the promiscuous sex relations defined as prostitution; recent methods of therapy make practicable the shortening of the period of infectivity and improve the chances of ultimate recovery of the patient submitting to early and thorough treatment; once contracted, they may run their course to practical recovery, or a resting stage, with or without medical assistance, but under present conditions an unknown and large percentage of those infected never completely regain their health or cease to be carriers, and therefore are a continuous menace to society. Syphilis in its early stages is especially a public danger, while in its late manifestations the damage is largely confined to the individual himself. Gonorrhœa, on the contrary, while a public danger at all times, is particularly damaging to the individual in its early acute development, and later becomes an insidious danger to those intimately associated with him, especially within his home and family.

In a word, we know the cause of these diseases; we know that human "carriers" afford their chief mode of dissemination; we know that in prevalence and injury to the people they are not outranked by any others of the communicable disease group; and we know that theoretically we should proceed to apply these facts exactly as we apply the similar facts concerning other preventable diseases. Reduced to simplest terms this means the adoption and enforcement of (1) measures for the discovery, treatment, and control of individuals already infected, (2) measures for the elimination of conditions of environment favouring the dissemination of the infection, (3) measures for the protection of individuals not yet infected.

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[1] A paper read before the American Association for the Advancement of Science, St. Louis, Mo., on Jan. 2nd, 1920.

Support of Public Opinion Required.

In practice the application of such a programme cannot proceed until the details of effective measures have been worked out and demonstrated, and the support of public opinion for an active campaign has been secured. The public is interested in the conservation of health as an asset in the world's work, and looks upon the eradication of any disease merely as one of many efforts which collectively may aid Society in guaranteeing "life, liberty, and the pursuit of happiness" to its members. An individual having a programme for the prevention or control of a disease must be prepared to undergo most searching interrogation as to the soundness of the programme, and must compete for recognition with others who have different plans for social progress, not only in the matter of disease prevention but in matters which may be of far greater importance to civilisation. He may present the most complete and statesman like programme and still accomplish nothing to protect his great grandchildren from the diseases against which he contends unless he popularises his knowledge, pioneers the way for community action and perpetuation of the initial effort. When the public does wake up to the possibilities of prevention it desires to do everything at once and get the job over with; from battling to get their programme recognised, those promoting a special campaign find themselves battling to have unsettled questions laid on the table until a careful decision as to policy and method can be made. All public health progress has followed this course.

The pendulum has swung back and forth between general ignorance and widespread interest, foolish indifference and unwarranted fears, impatience over slow progress in applying old measures, and confusion over continued controversies relative to new measures.

Inconsistencies with Regard to Venereal Disease as a Health Problem.

In the case of syphilis and gonococcus infections the public health problem has been theoretically more hopeful and practically more difficult than for any of the others. The basis for control of syphilis and gonococcus infections must be the same in principle as that for the control of other communicable diseases. This must be recognised, else we will fail. The medical profession as well as health officers and military authorities are quick to endorse this point of view, but slow actually to put it in practice. To illustrate: in small pox we use every means to diagnose and treat the patient for his own sake, and promptly report the case to the health officer in an effort to protect the community through such measures as he may deem it necessary to take; in syphilis, when the same individual comes to us, we talk much of the Hippocratic oath, of personal liberty of the patient, of the tragedy of a broken home if the patient's wife should learn of his disease—the plain fact is that public opinion has not been forming for generations in support of a genuine public health programme against syphilis as it has against small pox, and we have not had the courage fully to apply our knowledge until that opinion is formed. In diphtheria we not only report our cases, but we follow them into the home and the school or business, and examine their associates for the detection of other cases or carriers—if we were sincere in our belief that the venereal diseases must be attacked as a public health problem rather than as an adjunct to a moral one, we would work out practicable measures to compass the same results which we achieve in diphtheria. In malaria we have long advocated the elimination of swamps and the protection of the uninfected portion of the population from the bites of malaria carrying mosquitoes, but in venereal diseases we not only withhold from the health officer information of known foci of infection, but encourage him to state that he has no interest in the elimination of red light districts and other recognised centres for spreading these diseases. Here again the fact is that we know better but have not urged our officials to assume leadership in solving such a complicated and disagreeable problem. In tuberculosis, we take infinite pains and spend millions of dollars to advise, treat, and give after care to persons who are found to be infected; yet in syphilis and gonorrhœa cases even our best clinics have made comparatively little headway in following up their patients and keeping them continuously under treatment, and our physicians as a rule either will not treat such cases at all, or feel no responsibility for keeping them under treatment and instructing them concerning the protection of others from infection. Such inconsistencies between the theory and practice of regarding the venereal diseases as a health problem are due to failure in the past to develop public opinion in support of a rational campaign; but much has now been done in this direction, and the demonstration of practical measures during the past two years in every part of the United States has prepared the way for rapid progress. Untreated cases are the principal source of infection and these cases may be classified into those who never seek treatment, and the "missed" cases among those who have presented themselves for medical diagnosis and treatment; the uncured cases are next in importance; and our failure to follow up contacts with known cases constitutes an additional important factor, as does likewise our failure to secure the diagnosis and treatment of suspected cases and carriers. For 20 years individual workers and volunteer organisations have endeavoured to devise ways and means of reconciling theory and practice in combating these diseases. Finally, the American Social Hygiene Association, the Oregon Social Hygiene Society, the Young Women's Christian Association and other agencies joined in an appeal to Congress to establish a federal board empowered to develop research, educational, and administrative facilities for concerted attacks upon this problem throughout the nation. The United States Interdepartmental Social Hygiene Board was created, and simultaneously by the provisions of the same Army Bill a division of the United States Public Health Service was established to encourage and direct the campaign for the gradual eradication of the venereal diseases. Through these federal departments cooperating with the army, navy, Bureau of Education, Children's Bureau, and other Governmental agencies, the United States Government has inaugurated within the last year and a half the most nearly complete programme ever undertaken for the control, prevention, and eradication of gonorrhœa, syphilis, and chancroid. This programme involves a search for additional accurate information concerning the causes, carriers, prevention, treatment, and control of these diseases; it includes measures for the appropriate distribution of this information; it provides for the development of sound educational methods of sex education; it supports medical measures for treatment, prevention, and control in every State in the union; and it supplies plans and resources for the employment of social measures for protection against, and for the care of persons with, these diseases. In short, the Government has provided financial resources and the administrative machinery for promoting—

(1) Scientific research for better medical methods of treatment and prevention.

(2) Educational, sociological, and psychological research and demonstration of better educational methods in the prevention of venereal disease.

(3) The application of medical measures for the prevention, treatment, and control of these diseases.

(4) The utilisation of social measures for protection against and care of carriers of venereal disease.

Since the initiation of this composite programme the Government has expended something over $3,500,000 and secured thereby the expenditure of an even larger sum by State and local governments and volunteer agencies.

Government Support for Research Work in the United States.

The United States Inter-departmental Social Hygiene Board has appropriated over $120,000 to 20 American colleges or universities for the purpose of supporting 33 separate researches to be carried out in the scientific laboratories of these institutions. There are now over 100 men and women at work upon these efforts to perfect better medical treatment and prevention measures for gonorrhœa, syphilis, and chancroid. Some of the scientific applications now being made for the control of these diseases show a striking similarity in their details to the applications of scientific knowledge that have been made for the control of malaria and yellow fever. In the control of these diseases we have accomplished dramatic and spectacular results by the use of screens and of sanitary procedures for draining swamps and oiling water, thus closing off the feeding-places and destroying the breeding-places of the mosquitoes that carry these diseases. To-day, under the provisions of the United States Inter-departmental Social Hygiene Board, we are working over plans for devising analogous social and legal "screens" that will keep the human carriers of syphilis and gonorrhœa away from their victims and eliminate the conditions which breed them. Referring again to the past by way of introducing the present, an illustration may be drawn from the remarkable scientific research on the synthetic production of the so-called "606" for the treatment of syphilis, one of the most gratifying and scientifically satisfying achievements of modern pharmacology. Very recently the United States Inter-departmental Social Hygiene Board made appropriations to American scientific laboratories for the synthetic production of new compounds for the treatment of gonorrhœa and for some much-needed improvements on the arsphenamine treatment of syphilis. The Brady Urological Institute of the Johns Hopkins Medical School has already produced a new mercurial compound as a result of an investigation that combined a brilliant scientific calculation with a practical and satisfying therapeutic demonstration. This product, mercurochrome "220," carries the qualities of deep tissue penetration, effective bactericidal properties, and a non-toxic effect upon tissue cells, and would seem to represent an effective and practically useful application of scientific knowledge to the treatment of gonorrhœa. Time alone, of course, can tell just how useful this drug may be.

Experiments of a similar character, supported in part by the United States Inter-departmental Social Hygiene Board, are being carried on for the production of other synthetic compounds at the Johns Hopkins Medical School, the Medical School of the University of Wisconsin, and the University of Nebraska. The Harvard University Medical School investigations are being made on the properties contributary to the toxicity of arsphenamine, neoarsphenamine, and analogous products.

Students of bacteriology and parasitology have in the past patiently studied the different strains of some of our better-known pathogenic bacteria and protozoa, thus giving a rational basis for a scientific investigation of their relationship to the human host. Scientific investigations are now being made at the instance of the Board in several American medical laboratories for the purpose of charting the gonococcus group. Serological studies of this group are being carried out in the Cornell University Medical School, and at Yale University there is being made an intensive study of methods for the isolation and identification of the gonococcus with a view to determination of the homogeneity of strains and their ætiological relationships.

The case-histories in which arsphenamine has been used indicate that this arsenical compound has toxic properties, which under certain circumstances are of serious danger to the patient. Because of this fact newer arsenical compounds have been developed in the hope that the product would exhibit less toxic properties. The nature of the toxicity of "salvarsan" and analogous arsenical compounds is a matter of extreme importance. Investigations for the identification of properties that contribute to the toxicity of these products are being carried out in the Harvard University Medical School. In connexion with these investigations, although in another laboratory—the Massachusetts State Psychiatric Institute—there is now being developed an investigation for the detection of changes effected in the central nervous system by various methods of neurosyphilitic therapeutics, complete central nervous systems of individuals treated intravenously, subcutaneously, and intraspinously having been secured.

Investigations Concerning the Families of Syphilitic Patients.

The family of the syphilitic presents problems that are in a great many respects very like those encountered in the family of the tuberculous case. The field for investigation is, to say the least, as great and as promising as was the field in tuberculosis. A sociological, psychological, educational, and medical investigation is being carried on now at the Massachusetts State Psychiatric Institute, Boston, covering the families of the syphilitic patients who have come to that institution in recent years, and with whom the officials of that institution have a very satisfactory mutually useful working agreement. These investigations will very likely secure important information concerning the acquirement of syphilis by the members of a family, and should develop more effective methods of group instructional hygiene for the avoidance of such infections. Furthermore, these researches should lead to a much clearer and more appropriate social programme for the protective, preventive, and reconstructive hygiene of these diseases.

Specialisation and Scientific "Team-Work."

The progress of science has been accompanied by a very definite specialisation of scientific investigators. While this specialisation has led to scientific advances that could have been achieved in no other way, it has been accompanied by an intellectual separation of scientific investigators that has made it increasingly difficult to utilise several highly specialised lines of investigation for the purpose of accomplishing a particular composite result. The synthetic chemist, the physiologist, the pathologist, and the pharmacologist are specialised scientific students whose joint activities would often be of very much greater practical value in medicine or in preventive hygiene if their scientific investigations could be made a part of a prearranged correlated series of researches. With this purpose in mind a combination research programme has been established whereby synthetic chemists of Northwestern University and the University of Illinois have undertaken to develop new compounds carrying arsenic which are to be tested out therapeutically in the Laboratory of Pharmacology and Therapeutics of the University of Wisconsin. This combination brings together three powerful laboratories in three great universities, and should result in a piece of very effective scientific "team-work." It is impressive to note that these scientific experts, who were so deeply concerned yesterday with the discovery of powerful chemical offences and defences against our human enemies, are to-day applying their brilliant resources for this discovery of chemical defences against our pathogenic enemy, the treponema. It is to be hoped that the discoverer of "Lewisite" and his present associates will find a chemical agent that will defend us with equal success against syphilis.

There is not time here to present the details of all the investigations which have been authorised by the United States Inter-departmental Social Hygiene Board or are being carried out independently, but for purposes of the association's proceedings there has been included an epitome of them at the end of this paper.

The purpose of this discussion is primarily to stimulate the interest of the members of the American Association for the Advancement of Science in two directions: (1) the development of public opinion in support of applying the knowledge which we already have, and (2) the acquiring of new knowledge applicable to the reduction in prevalence of syphilis and gonococcus infections, not merely knowledge of laboratory or chemical technique, but sociological and particularly psychological and psychiatric knowledge.

Social and Psychological Aspects

In combating syphilis not only must the social aspects of the problem be dealt with but the moral and religious as well. It has been pointed out that yellow fever would not now be essentially a matter of the past instead of one of the most dreaded of communicable diseases of the present had the epidemiologist not supplemented by field observations the evidence of pure science and developed practical methods of dealing with the reduction of exposures to the bite of the insect carrier of infection. Likewise it may be repeated that the epidemiologist may not hope to succeed against syphilis unless he recognises the human carriers of infection—the woman who practises prostitution and the men who seek sexual relations with her. It may not be considered strictly scientific to compare these so called human carriers with the mosquito hosts of such diseases as yellow fever and malaria, but the general analogy holds. It may fairly be maintained that were prostitution to cease for a generation syphilis would be brought under complete control, and what is true of syphilis is in large measure true of the gonococcus infections. It is the duty of the scientist to examine carefully the possibilities of eliminating these human carriers of the venereal diseases. Sir William Osler once said to some of us by way of illustrating the necessity for an ever present freshness of view point in studying a medical problem: "You must bear in mind that there are three ways of eradicating malaria, all of which are theoretically equally effective: (1) you might kill all the malaria parasites, (2) you might kill all the mosquito carriers, (3) you might kill all the people." This observation applies to the eradication of syphilis, but it happens, as in the case of malaria eradication, that we do not wish to kill all the people, and we have not yet devised ways of killing all the parasites or of eliminating all the carriers. Much may be expected, however, from a study of both the second and the third methods. Already enough is known to ensure an enormous reduction in the prevalence of venereal diseases if we but apply our knowledge, but we need more social, economic and psychological facts before a complete programme can be formulated. The mistakes of the past must also be studied. For example, it was natural that the public health administrator should propose to identify all the suspected carriers and examine them. This has been done with signal success in diphtheria, people by the hundreds or by whole communities have been subjected to examinations of their nose, throat and ears, which are no more difficult from the point of laboratory and clinical technique than the examination of an equivalent number of person for syphilis. But the latter's selection of the mucous membranes of the genito urinary system as the principal site for its initial lesions completely alters the practicability of applying the methods used in dealing with infections entering the body through the membranes of the mouth and throat. Conventions of clothing, questions of morality and modesty, besides the characteristics of the disease, all render it necessary to adopt other measures. The effort has been made to examine those who were known to be engaged in prostitution but the men have always successfully objected to being examined, and only those women who could not escape the registration or other police machinery set up could be brought under the regulations. Thus there has never been more than a small percentage of the entire number even of the women under examination, and superficial examinations of a few women without any examination of their male companions has not proved effective. Under the exceptional circumstances of isolated military troops subject to frequent examination, simultaneously with examination of women in segregated houses visited only by the soldiers, such examinations for male and female carriers have claimed measurable results, but the essentials of complete control of both sexes have not been practicable in civilised countries in times of peace, or even during war for large bodies of troops.

Only recently has society become willing to consider the application of law, social protective measures recreational and educational facilities to the prevention of exposure of its members to the venereal diseases. The analogy between screening the uninfected portions of a population against the mosquito carrier of malaria and screening them against the human carrier of venereal diseases through setting up a protective screen of social measures for combating prostitution is just becoming apparent to large numbers of citizens. There was a time in the history of preventive medicine when the public were taught to hang pieces of asafœtida about their necks or to put saucers of carbolic acid under the sick bed. No doubt these measures did some good in the same way that our quarantine signs placed before the quarters of scarlet fever cases do some good now in inducing the well to keep at a distance from the known sick, but such measures have been largely replaced by more effective and more intelligent methods. Similarly, the scarlet letter and the painted lady labels have in their time served as indications of the desire of the public to have the well kept away from the morally and physically sick of vice districts. But, likewise, these crude and cruel methods are giving way to more intelligent and far more effective measures which take cognisance of a well rounded programme for moral medical, and social rehabilitation of those who are spreaders of venereal disease and immoral practices. Just as joint investigations on new medical measures are being promoted, so joint social and moral welfare investigations are being encouraged.

Conclusion

The United States Inter departmental Social Hygiene Board, coöperating with the Division of Venereal Diseases of the United States Public Health Service and State Boards of Health as official bodies and with the American Social Hygiene Association and its affiliated branches as voluntary agencies is endeavouring to promote a statesman like effective campaign to relieve the citizens of the United States from the ravages of these great unconquered disease enemies. You who hold influential positions in university and civic organisations are in a position to bring about for concerted attack on the venereal diseases, an allied army of scientists, social workers professional men business men, and citizens analogous to the coalition of our armies under Marshal Foch. Until that was accomplished we could not win the world war; until this suggested coalition of scientific, social, political, and religious resources of the nation takes place, we may not hope for the brilliant results which are possible in conquering the venereal diseases. Men of science and medicine particularly are challenged by humanity to give their aid to this great disease battle, which must go on for generations, as the fight against small pox has gone on if we are to do our duty by the succeeding generations, for whom we are conserving our forests and water power and our other natural resources.

The paper concluded with the epitome of the scientific investigations now being carried on in America with the assistance of the Social Hygiene Board which appeared at length in THE LANCET of March 13th, pp. 622–624.

MEDICAL INSPECTION AND TREATMENT OF SCHOOL CHILDREN IN SCOTLAND.—By an Order in Council, the powers and duties of the Scottish Education Department in regard to the medical inspection and care of children have been transferred to the Board of Health. A memorandum issued by the Board points out the progress already made and the necessity for fresh interest and advance. Special emphasis is laid on the need for preventive work and attention to hygiene of schools and pupils, for physical education and training, the inculcation of sound habits the teaching of the responsibility of the individual to the community, and the adequate treatment of various ailments. Emphasis is also laid on the need for cooperation between the education and health authorities in the interests both of economy and efficiency, and it is pointed out that the same officials may with advantage act for the two authorities and that the same premises may be used. Education authorities are being asked to submit comprehensive schemes of medical inspection and treatment as soon as possible.

MEDICINE AND THE LAW.

Rex v. *Holt.*

THE Court of Criminal Appeal had recently before it the case of F. R. Holt, who was convicted of the murder, near Blackpool, of a woman with whom he had been intimate. The facts have been so widely published that they need not be gone into here. An unusual feature of the case was an attempt on the part of the defence to prove an alibi, and as an alternative defence to show that at the time when the crime was committed Holt was insane, as insanity is defined for the purposes of the criminal law. As to the alibi and any question of whether Holt in fact shot Mrs. Breaks on Dec. 23rd, 1919, on a sand dune near Blackpool, little or nothing was heard in the Appeal Court. Among the grounds of appeal it was argued that evidence had been wrongly admitted upon points not connected with the plea of insanity, but the court was not satisfied as to any of the objections thus raised, and apart from them the main question of the condition of the prisoner's mind when he committed the act of murder was argued at length. Further than this, fresh evidence as to his mental condition was tendered and allowed to be given. Any objection on the part of the Crown was withdrawn at the suggestion of the Lord Chief Justice, who pointed out that in the circumstances the court had a discretion to admit fresh evidence. Lord Reading was further of the opinion that it was desirable both from the point of view of the Crown and in the public interest that such evidence should be sifted in open court. The fresh witnesses showed that Holt had had a female cousin certified and confined in a private lunatic asylum, and that his paternal grandfather had suffered from delusions. A medical man who in the month of December had played cards with him had noticed his lack of power to concentrate his mind upon the game. This, however, was shortly after four days spent with Mrs. Breaks and the prisoner had been a winner at whist, poker, and bridge. More important medical evidence was given by Dr. B. Day, who had treated him in 1916 or early in 1917 for syphilis in its secondary stage, and had considered him then to be suffering from shell-shock. Dr. Day's application for a lumbar puncture to decide the presence or absence of general paresis was refused. In cross-examination of this witness it was mentioned that Holt had since been examined for insurance apparently without syphilis being detected. Two other medical witnesses spoke of conditions observed in 1915 and 1919, and Dr. D. Blair, called as an expert who had heard the evidence given in the Court of Criminal Appeal, was of the opinion that Holt was suffering from delusional insanity before the date of the murder, and that at the time of the murder he was suffering from general paralysis of the insane. Dr. P. Smith was of the opinion that Holt suffered from delusional insanity and was not of sound mind on Dec. 23rd, but that the indications were not manifest before Dec. 25th. In an argument founded upon the evidence, of which the above is a bare outline, and upon that given at the trial, where at first an attempt was made to show that the prisoner was unfit to plead, Sir E. Marshall Hall, K.C., sought to go further than the well-known rule in McNaughton's case. He argued in effect that if a man through no fault of his own had an impaired mental condition affecting his will power he should be deemed insane in respect of a crime from which normal will power would have enabled him to abstain. In other words, that, knowing the nature and quality of his acts and that he was doing wrong, he might be excused on the ground that he was urged by an irresistible impulse. In delivering the judgment of the court, dismissing the appeal on every ground, the Lord Chief Justice pointed out that the question of irresistible impulse had been left to the jury by Mr. Justice Greer at the trial, and that they had not accepted the contention of the defence as to its existence. On the question whether the Court of Criminal Appeal, having heard the fresh evidence adduced, should say that the prisoner was insane when he killed Mrs. Breaks, his lordship said that the new evidence had taken the case no further than before. It was based on hypothetical speculation and the rule in McNaughton's case must be observed. It was not enough that medical witnesses should say that they considered the prisoner insane.

Negligence and Compensation.

On April 1st, in Edinburgh, the First Division of the Court of Session gave judgment in two cases where compensation was claimed under the Workmen's Compensation Act, in which there was negligence on the part of the appellants. In both instances the persons injured were miners, and the circumstances were similar. Both had prepared blasting shots, and when these failed to explode up to time, the workmen returned within the period prescribed by the regulations as being unsafe, with the result that the shots went off and they sustained injuries, in one case fatal. Although there was negligence the court held that the appellants were entitled to compensation. The decision is of interest as it is apparently directly contrary to that given in the House of Lords on March 22nd in the case of Robertson *v.* Woodilee Coal and Coke Company, Ltd. Robertson was killed by an explosion in a pit, which resulted from his striking a match. His widow was held to be unentitled to compensation, as the case was one in which the doctrine of "added risk" was exemplified. The accident resulted from his own action, with full knowledge of the prohibition against it, and of the danger his action entailed.

The City Coroner's Views on Juries.

Dr. J. F. Waldo has issued his annual report as coroner for the City and Southwark for 1919, which, as usual, contains some interesting facts and statistics, accompanied by opinions candidly expressed with regard to them. It is to be observed that the 355 inquests held in the City and Southwark in 1919 exceed by 46 the corresponding number for 1918. This appreciable increase, presumably to some extent, is due to the greater volume of traffic caused by reviving business. At all events, it is greater in the City than in Southwark, 158 deaths having been inquired into in the former as against 132 in 1918. Investigation satisfied Dr. Waldo in 79 cases that inquests were not required. He states that post-mortem examinations were ordered in 85 per cent. of the inquests held by him. Among the comments upon matters concerning his office expressed by the learned coroner, we are a little surprised to read a rather confidently expressed recommendation that the power to hold inquests without juries, given by the Juries Act, 1918, should cease now that peace is established. We were under the impression that coroners were, on the whole, well satisfied with the less cumbrous procedure involved in the change, and that as they are obliged to have juries to take some of the responsibility off their shoulders in cases of suspected murder or manslaughter they would wish matters to continue as they are. We also believed, and, indeed, do believe, that intelligent and busy citizens liable to be summoned as jurors have no wish to see repealed an Act admittedly passed in the emergency of war. With those not intelligent and habitually without occupation, we should have thought that a coroner would gladly dispense. Dr. Waldo declares himself quite satisfied with the quality of the jurors whom he obtains in the City, and therefore maintains that a fairly intelligent jury, assisted and directed by a coroner, is a far better tribunal for the elucidation of truth than a coroner single-handed. This may be so to some extent and in some cases. As a rule, however, we believe the coroner, particularly the medical coroner, would be fully equal to the occasion. Juries of the more intelligent kind are obtainable in precisely those places where their members can least be spared from their business occupations. A man with a family to maintain, a business to reconstruct, and high prices and high taxes to contend with may still have to sit on a jury, if a case of possible murder or manslaughter requires his verdict. He would probably be glad to be freed even from this infrequent duty. He is ready, we feel confident, to leave the medical coroner, assisted by the medical witness, to clear the matter up.

AUSTRALIA

(FROM OUR OWN CORRESPONDENT)

The Claims of Returned Medical Soldiers

SOME feeling has been aroused over recent appointments to the staff of the Melbourne Hospital Of three vacancies for the post of physician to out patients, two were filled by applicants who had not done any military service The Returned Medical Officers Association, which in Victoria is a militant, not to say aggressive, organisation, has protested in the daily papers and by deputation to the hospital committee that an injustice has been done to some of its members, who were candidates for these positions, and demands that the appointments shall be reconsidered The committee at its last meeting confirmed the appointments There was a divided opinion as to whether the question should be reopened The appointments are made in reality by an advisory board, which is constituted by six members of the general committee, three members of the honorary staff, and three each from the University Council and the Faculty of Medicine This arrangement was substituted for the old election by vote of the subscribers, and so far the general committee has simply endorsed the recommendation of the advisory board without comment There is no reason to suppose that the selections were made in the instances referred to without the fullest consideration by this expert board, but the heartburning arose from the fact that an applicant who had been on the staff for some years in a junior position, and had done war service oversea, was unsuccessful Of the two gentlemen objected to by the malcontents, one was admittedly rejected as unfit for military service owing to X ray burns, and the other had a brilliant record as medical superintendent during the war time and through epidemics of meningitis and influenza The Council of the Victoria Branch of the British Medical Association forwarded a letter to the hospital committee asking that the principle of preference to soldiers should be strictly observed This letter is to be made the subject of a special meeting at which the whole matter will probably be reviewed, although there is no great likelihood that the appointments made will be disturbed One of the successful applicants has written to the press stating that, in his case, the methods of the Returned Medical Officers Association have nearly approached persecution

Medical Act of South Australia

The Medical Act of South Australia, which has just been passed by both Legislatures, is mainly characterised by changes in the powers of the Medical Board The registration requirements are now similar to those of Victoria, in that no diplomas other than those of the United Kingdom will be accepted unless issued by a country giving reciprocal recognition to South Australian diplomas The Board is also granted power to apply to the Supreme Court for the removal of names from the Register on various grounds, including being guilty in the Board's opinion of infamous conduct in a professional relation The fee for registration is £1 1s annually or a lump sum of £5 5s in perpetuity

Federal Committee of the B M A

At a meeting of the Federal Committee of the British Medical Association, held in Sydney early in February, discussion took place on the subject of extension of public health services, but it was almost entirely academic, and formulated in vague resolutions as to research and investigation into various topics such as infant mortality and the promotion of local "campaigns" against preventable disease It is a little absurd to waste time and money in establishing expensive commissions and research laboratories when the plain needs are staring everybody in the face Scarcely one provincial town or city in the whole of Australia has either an adequate water supply or system of sewage disposal No amount of research will suggest any defence while such elementary facts are neglected —A statement in connexion with the Medical Relief Fund for the benefit of returned men showed that £11,456 had been subscribed and £899 disbursed —In respect of the matter of Dr Eugen Hirschfeld of Brisbane, it was resolved "That the Federal Government be asked to deport all medical practitioners of enemy origin who have been interned during the war" —It was resolved to protest against the order of the Minister of Customs by which the importation of vaccines and sera was practically prohibited

Child Welfare

A conference on "Boy and Girl Welfare" has been held in Perth, and was addressed by a number of medical speakers A deputation, with Professor R J A Berry, of Melbourne as chief speaker, obtained from the Government a promise of an endowment of £2000 per annum for ten years for an institute for the study of feeble mindedness and the training of teachers

Personal

Dr T P Dunhill of Melbourne, who has been appointed Assistant Director of Surgery at St Bartholomew s Hospital, London, under the new teaching scheme of the London hospitals, is well known for his work on exophthalmic goitre, and served with distinction in France, being awarded a C M G Professor W E Agar, the newly appointed occupant of the chair of zoology in the University of Melbourne has arrived and Dr T L Apperly, the recently appointed lecturer on pathology, is expected shortly

March 1st

URBAN VITAL STATISTICS

(Week ended March 27th, 1920)

English and Welsh Towns —In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 18 million persons, the annual rate of mortality which had increased from 15 6 to 17 9 in the five preceding weeks, further rose to 18 7 per 1000 In London, with a population of nearly 4½ million persons, the annual death rate was 19 3, or 1 5 per 1000 above that recorded in the previous week, while among the remaining towns the rates ranged from 10 7 in Coventry, 10 8 in Eastbourne and Cambridge and 11 1 in Hornsey, to 28 1 in South Shields, 32 2 in Wigan and 35 7 in Dudley The principal epidemic diseases caused 477 deaths, which corresponded to an annual rate of 1 4 per 1000, and comprised 214 from measles, 114 from whooping cough, 64 each from diphtheria and infantile diarrhœa, 18 from scarlet fever, and 3 from enteric fever Measles caused a death rate of 1 8 in Liverpool, 2 0 in Barnsley, 2 6 in St Helens, 3 0 in Wigan, 3 1 in Gloucester 3 3 in Cardiff, and 4 3 in Lincoln The deaths from influenza which had steadily increased from 66 to 312 in the eight preceding weeks, further rose to 392, and included 131 in London, 46 in Birmingham, 21 in West Ham, 14 in Liverpool and South Shields, 13 in Manchester, and 8 in Leyton and Plymouth There were 2101 cases of scarlet fever, 2043 of diphtheria, and 14 of small pox under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 2158 2066, and 8 respectively at the end of the previous week The causes of 44 deaths in the 96 towns were uncertified, of which 13 were registered in Birmingham, 4 in London, and 3 each in Blackpool and Sunderland

Scotch Towns —In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2¼ million persons the annual rate of mortality, which had increased from 14 2 to 17 8 in the five preceding weeks, further rose to 18 0 per 1000 The 414 deaths in Glasgow corresponded to an annual rate of 19 4 per 1000, and included 16 from influenza, 12 from measles, 5 from infantile diarrhœa 2 from whooping cough, and 1 each from enteric fever and diphtheria The 93 deaths in Edinburgh were equal to a rate of 14 2 per 1000 and included 2 each from measles and diphtheria and 1 from infantile diarrhœa

Irish Towns —The 190 deaths in Dublin corresponded to an annual rate of 23 9, or 0 6 per 1000 below that recorded in the previous week, and included 11 from measles 10 from whooping cough, and 2 each from scarlet fever and influenza The 284 deaths in Belfast were equal to a rate of 35 9 per 1000, and included 30 from influenza, 6 from whooping-cough, 4 from infantile diarrhœa, 3 from measles, 2 from scarlet fever, and 1 from enteric fever

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THE WELLCOME BUREAU OF SCIENTIFIC RESEARCH —The address of the bureau will, on and after April 15th next be 25, 26, and 27, Endsleigh gardens, Gordon square London, N W 1, Director in Chief, Dr Andrew Balfour

Correspondence.

"Audi alteram partem."

BIOGRAPHY OF SIR WILLIAM OSLER.

To the Editor of THE LANCET.

SIR,—Lady Osler has requested me to prepare a biography of her husband and I shall be most grateful for any letters or personal reminiscences, or for information concerning others who may possibly supply letters.

Copies of all letters, no matter how brief, are requested, and it is hoped that dates may be supplied if possible.

If the originals are forwarded for copy they will be promptly returned.—I am, Sir, yours faithfully,

HARVEY CUSHING, M.D.

Peter Bent Brigham Hospital, Boston, Mass.,
March 24th, 1920.

LIFE ASSURANCE AND GLYCOSURIA.

To the Editor of THE LANCET.

SIR,—The importance of the early detection of glycosuria cannot be exaggerated, and the fact that many cases of diabetes are first discovered during the preliminary medical examination is not the least of the benefits life insurance confers. To be fair to the individual on the one hand and not to expose the company to unnecessary risks on the other it is important that such examinations should be carried out with all the aids modern science affords, and I cannot help thinking that the methods for detecting grape-sugar in the urine and arriving at a diagnosis of diabetes mellitus described by Dr. R. T. Williamson in THE LANCET of March 27th must lead to the loss of many reasonably good "lives" by the companies and much unnecessary suffering and discomfort on the part of the proposers, as they will result in the rejection of many persons who are in the unfortunate position of passing reducing substances other than glucose in their urine. These are by no means as uncommon as is generally supposed. During the past year I can call to mind two cases of pentosuria, one of true lævulosuria, and several of pseudo-lævulosuria which had been rejected by medical examiners for insurance companies and told they were suffering from diabetes. The urine in each case gave a definite reaction with Fehling's solution, and yielded an osazone with phenyl-hydrazin, and although the pentoses do not, of course, ferment lævulose and pseudo-lævulose behave like glucose. So long as reliance is placed on one, or even two or three, routine qualitative reactions when examining the urine such mistakes in diagnosis and, what is worse from the patient's point of view, in treatment also will continue to occur. Seeing the ease with which sugar may now be estimated in the blood and the definite indications of defective carbohydrate tolerance which blood analyses yield, it is surprising that writers and medical experts on life insurance have not made more use of this delicate method to confirm the results of urinary analyses. I now place much more reliance on examinations of the blood than of the urine in the diagnosis and treatment of diabetes, and I would strongly urge the wider adoption of blood-sugar estimations. All the rejected cases referred to above showed a normal blood-sugar content, and after a test-meal the percentage of sugar in the blood followed a normal curve, showing that their carbohydrate tolerance was not diminished in spite of the presence of "sugar" in the urine.

Before concluding, may I say with reference to the letter by Dr. O. Leyton on Anæsthetics and Diabetes Mellitus in the same issue of THE LANCET that his experience regarding the effect of anæsthetics on carbohydrate tolerance in diabetes seems to have been unfortunate and, I think, unusual when a patient is carefully prepared for operation. Several of my diabetic patients have undergone serious operations and I have never found any diminution of tolerance to follow; in fact, in one case, where an abdominal tumour was removed from a woman, there was a considerable increase. Anæsthetics, particularly chloroform and ether, are dangerous for diabetics owing to the acidosis they induce, probably owing to their action as fat solvents and their effect on the liver. A couple of weeks on a fat-free diet with alkalies at the time of the operation will do much to minimise the risk.

I am, Sir, yours faithfully,

P. J. CAMMIDGE.

Nottingham-place, Marylebone, W., March 27th, 1920.

To the Editor of THE LANCET.

SIR,—In the valuable paper by Dr. R. T. Williamson on Life Assurance and Glycosuria in your issue of March 27th the writer states his opinion that when rejection of a proposer takes place on account of glycosuria the medical examiner should inform him of the cause, and explain its significance and the importance of treatment. Obviously the same principle would apply to many other causes of rejection discovered by an examiner, particularly to albuminuria and heart lesions. As Dr. Williamson states, it is a rule of many (I should say nearly all) assurance companies that no information as to the result of the examination should be given by the medical officer to the proposer. This is surely a salutary rule, for: (1) the medical officer has no power or right to forecast the decision of the board of directors, whom he advises; (2) all decisions should come from the officials of the company direct, who have other considerations than those purely medical to take into account; (3) a wily proposer will sometimes, on an inkling of an unfavourable verdict, go to another office and say he has not been rejected. Moreover, the examiner, if he followed Dr. Williamson's method, would be advising the proposer on his condition, which is no part of his duty and for which the proposer gives no fee. The rule of giving no information is therefore, in my opinion, a proper one, to be observed however with discretion in the spirit rather than the letter. Thus I have occasionally been asked by the company officials to hint to a certain proposer that advanced terms would probably be necessary, with the view of preparing his mind for them.

Has, then, the medical examiner no responsibility towards the proposer when he discovers some factor of importance, unknown to him, in his physical condition? Undoubtedly he has. How is this to be discharged? By advising him to consult his own doctor, advice which can be made slight or emphatic, according to the need and the proposer's temperament. In this way the duty of the examiner to the proposer, in respect of the knowledge he has acquired, is fulfilled, as well as that to the assurance office. A long and somewhat wide experience of assurance medical practice confirms the writer in the belief that this plan works satisfactorily.

I am, Sir, yours faithfully,

R. HINGSTON FOX.

Devonshire-place, W., March 29th, 1920.

To the Editor of THE LANCET.

SIR,—May I make one or two comments on Dr. R. T. Williamson's interesting paper in your issue of March 27th on this subject, which was discussed pretty fully in 1914 by the Assurance Medical Society, in connexion with a paper read by me, entitled "The Significance of (1) Diabetic Family History, and (2) Temporary Glycosuria in Life Assurance."[1] On this occasion I gave particulars of the family histories of 1143 policy-holders who had died of diabetes: their family histories (in the narrow sense of father, mother, brothers, sisters) showed deaths from undoubted diabetes in 41 cases—i.e., 3·6 per cent.—as against 1·05 per cent. in 1143 control cases of death from other diseases. Evidence was brought forward in favour of the views that there is a special form of family diabetes, tending to occur at an earlier age, and proving fatal more rapidly than the ordinary "acquired" type of the disease, and that this "family e occurs more commonly in the male than in the male

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[1] Vide THE LANCET, March 7th, 1914.

was rather surprised to note that Dr Williamson de no mention of Benedict s test for glycosuria s reagent, the use of which Dr P J Cammidge ocated very strongly at the 1914 meeting, is particu y suited for routine use in life insurance work It ery simple in application, appears to be free from fallacies inherent in the use of Fehling s solution, t is sufficiently sensitive for all practical purposes

cannot help feeling that Dr Williamson is a little ere in his suggestions as to the treatment that ould be meted out by insurance companies to pro sers manifesting 'temporary glycosuria The con nsus of opinion at the meeting already referred to s in favour of the possibility of such a condition ng in many cases nothing more than a functional rangement, and not by any means the inevitable fore nner of permanent disease Indeed Dr Williamson s per contains several good examples supporting this w Why, then, should such cases not be taken at linary rates if subsequent repeated examinations ow no evidence of glycosuria and all other factors—e habits, family history, &c —are favourable?

A point of great interest is raised by Dr Williamson s ference to the rule of most companies that the dical examiner should give no information to the oposer as to the result of the examination In my inion, this rule is intended principally to prevent the aminer from telling the proposer that he is a horoughly good life, ' or some similar phrase For must be remembered that life assurance is some ing more than a question of medical examination, e examiner makes a recommendation to the com ny, but this recommendation is only one of the factors hough an important one) which determine whether e case shall be accepted as a first class life, rated up, rejected Hence it would be obviously undesirable r the examiner, as a result of his investigation, to ejudge the decision of the board, a decision involving her additional considerations I do not for a moment lieve, however, that any company would object its examiner telling a proposer whom he found to suffering from glycosuria that there was something out his water pointing to the desirability of his con lting his own doctor But to go further, as Dr lliamson suggests, and to enter into an explanation to the significance of the glycosuria and its prognostic portance, would be unwise and obviously undesirable om many points of view In any case, the proposer ould soon get an indication of the need for medical lvice when he found that his proposal had been jected deferred, or rated up as the case may be

I am, Sir, yours faithfully,
OTTO MAY

London W March 29th 1920

NTRAVENOUS INJECTION OF TARTAR EMETIC IN GUINEA WORM INFECTIONS

To the Editor of THE LANCET

SIR,—All who have experienced the baffling results which have hitherto met the futile attempts to rid atients of guinea worm and to check its crippling ffects will welcome the valuable contribution by Dr W S Macfie on the use of tartar emetic by intra enous injection in this distressing disease published in HE LANCET of March 20th It is much to be hoped hat the record of ten cases, in which the treatment met with greater success than has yet been attained by ny other remedy, will be followed by further observa ions and tests and that its value may be definitely stablished as the reliable cure of guinea worm

My own interest in the subject dates back to the years 902 and 1903 when, as medical officer to the Anglo French Boundary Commission in the Gold Coast and Ivory Coast Colonies, I was confronted with the harassing problem of how to deal with the *infection and to keep down the heavy percentage of invaliding from* this cause which occurred among some 400 native carriers and escort during the period of 16 months occupied by *the Commission s survey of the* western frontier of the Gold Coast *Filaria medinensis* takes its more familiar name, guinea worm, of course, from its *prevalence* among West African natives, and is known to them under such various titles as *Nfa* (Fanti) *Dippah* (Kurtta), *Kbule* (Mendi), according to the corresponding tribe language or local dialect Among the carriers of the survey expedition no fewer than 156 or 40 per cent , applied for treatment for guinea worm though undoubtedly a larger number actually suffered from the disease In the cases which came under notice the sites of emergence of the worm occurred as *follows* —

	Per cent		Per cent
Lower extremity (22 % being in the foot)	77	Scrotum (involving the testicle in 1 %)	4 5
Arm or hand	9	Back and buttocks	3 5
Abdominal wall	4	Face	1
		Penis	1

Towards the end of the expedition no fewer than 25 per cent of the carriers were more or less crippled by the infection Such a heavy incidence was *not* surprising considering the liquid filth they frequently drank when on the march, for the disease has long been known to be conveyed through drinking water infested by the minute water insect *Cyclops quadricornis* the intermediary host of the undeveloped worm

Multiple infection was by no means uncommon in 54 cases each patient carried from 2 to 10, in 12 cases 11 to 20, guinea worms, and one unfortunate sufferer *had as many as 25 worms scattered about in various* parts of his body at the same time! Guinea worm was responsible for 15 cases of synovitis, involving the knee joint in 8 the ankle joint in 5, and the elbow joint in 2 *cases* In 22 cases *incisions were necessary* to relieve cellulitis and suppuration in the arm leg back, buttock, abdominal wall or scrotum, and in 2 cases in which the testicle was invaded there were both hydrocele and suppurative orchitis

Efforts at treatment directed to destruction of the worm in situ by injections of a few minims of a 1 in 1000 solution of perchloride of mercury into the *protruding head, or into the* substance of the worm where it lay, subcutaneously, were tried with every possible precaution, but were not found a success under the conditions prevailing on the march Intense swelling of the part injected occurred, and eventually suppuration resulted, probably to be accounted for by local necrosis of the worm and the liberation into the tissues of still active embryos and irritating toxins of the worm The method was originally introduced by Emily, a French naval surgeon, who claimed remarkable success among his cases thus treated in hospital where proper rest to the part and every antiseptic precaution were available

Experience showed that the only reliable and safe method was to follow the long established custom of slow extraction by cold water douching of the exposed head and by attaching the protruding portion of worm to a small splinter of wood, subsequently each day, by very carefully making a turn of the piece of wood and thus slowly winding the worm out, avoiding any tension likely to break it, an accident inevitably followed by cellulitis or suppuration In addition to this laborious process of extraction, native methods of treatment which aimed at first killing the worm occasionally proved efficacious I have notes of two such remedies supplied by one of my hammock men, a native *medicine man* from Kurtta One consisted in the application of a paste composed of the leaves of a plant belonging to the *Euphorbiaceæ*, called *Addi* in the Kurtta dialect, pounded up *with the juice of fresh limes the other* was a Mahomedan remedy, prepared by crushing rock salt with the brown seeds of a common plant and mixing into a paste with oil It was asserted that the application of *either of these pastes* to the protruded head would result in the death of the worm in three days, when it was claimed that the dead worm could be extracted *in toto* by winding without risk of cellulitis or suppuration following A trial was made *of the former of the two native remedies* but results did not justify its further use

Until the recently advocated treatment by means of intravenous injections of tartar emetic, with the very promising results described by Dr Macfie in his paper there has been no advance in our knowledge of an effective cure for guinea-worm which will cut short the tedium and risk of slow extraction by winding in vogue for so many years. It is, therefore, greatly to be hoped that future trials of this apparently successful mode of treatment may result in its recognition as a certain and reliable remedy. I am, Sir, yours faithfully,

Savoy Hill, W.C., April 6th, 1920. J. GRAHAM FORBES.

THE PATHOLOGY OF HEAT-STROKE.

To the Editor of THE LANCET.

SIR,—The intimation in THE LANCET of March 20th by Dr. W. H. Willcox that he regards heat-stroke as an auto-intoxication, and the report of the observation of a leucocytosis in the cerebro-spinal fluid in the same condition by two French workers, both call attention to the fact that there seems to be rather a dearth of information as to the pathology of the condition.

The following notes, unfortunately from memory, may be of interest. Three cases occurring in men of the Guards' Division who had done a long march with full kits under a hot sun came under my care in 1917. One proved fatal in a few hours. At the post-mortem changes indicative of a far-reaching morbid process came to light. In addition to congestion of the cerebral vessels there were petechial hæmorrhages of the pia over the cerebral hemispheres, also of the pericardium, endocardium, and pleura; in one lung, though I cannot exactly remember where, there was a large and very definite area of congestion; there was also a slight increase of the pleural fluid.

In view of my previous entirely unfounded prepossession that the condition was solely a matter of the central nervous system these evidences of widespread damage were surprising. They certainly seem to confirm the suggestion that a toxic agency is at work. In both the cases which survived I found that the headache was relieved by lumbar puncture, which disclosed the fact that the cerebro-spinal fluid was in excess and under pressure. It was perfectly clear, but unfortunately, owing to a rush of work, no investigation of its cytology was undertaken.

I am, Sir, yours faithfully,
S. C. DYKE, M.B., B.Ch., D.P.H. Oxon.,
Assistant Bacteriologist, College of Medicine,
Newcastle-upon-Tyne.
Gosforth, March 20th, 1920.

VACCINES AND THE DIPHTHERIA CARRIER.

To the Editor of THE LANCET.

SIR,—The results obtained by Dr. J. L. Brownlie (THE LANCET, March 27th) in the treatment of the convalescent diphtheria "carrier," whilst of the greatest possible importance to the community in general, possess particular interest to workers at Guy's. Since the very early days of the present century it has been our practice to treat with vaccines all students and nurses who develop the carrier habit, and it was the results we obtained that prompted the following paragraph in "Serums, Vaccines, and Toxins" in 1910 (p. 107, repeated in the 1916 edition, pp. 135-176): "In such cases (i.e., cases in which the diphtheria bacillus remains domiciled in the throat, &c., for prolonged periods after the acute clinical symptoms have disappeared) a vaccine should be prepared from that strain of *B. diphtheriæ* actually infecting the patient, standardised and administered in doses of 5 to 10 millions at intervals of five to seven days. One or two injections are usually sufficient to ensure the disappearance of the bacilli from the local site of infection."

The opportunities afforded by a general hospital for the collection of statistical observations in this connexion are limited (for here we certainly do not total more than a score of diphtheria cases per annum), and we consequently welcome the confirmatory evidence on a figure basis so convincingly set out by Dr. Brownlie. My object, however, in writing this note is to point out the two important features in which our practice differs from that of Dr. Brownlie. In the first place, we are convinced of the superiority of the "autogenous" as against the "stock" vaccine, and in the second we insist upon washing the bacilli with several changes of normal saline before using them in the preparation of our vaccine. It is true that, when grown upon solid media, the diphtheria bacillus only forms a modicum of toxin, but strains vary in this respect, and neglect of precautionary measures may lead on occasion to the production of uncomfortable local reactions.

I am, Sir, yours faithfully,
Guy's Hospital, S.E., March 31st, 1920. JNO. EYRE.

LAVAGE OF THE CLOSED PLEURAL CAVITY.

To the Editor of THE LANCET.

SIR,—With great pleasure and approval I have read Dr. F. G. Chandler's paper on Oxygen and Air Replacement of Fluid in the Pleural Cavity in THE LANCET of April 3rd, but I would like to point out that lavage of the closed pleural cavity is not new, as Dr. Chandler believes. In a paper on Penetrating Wounds of the Chest, which I published, in collaboration with Major G. C. Shattuck, of Boston, U.S.A., in the *Journal of the Royal Army Medical Corps* of September, 1919, I made reference to lavage of closed chests. I quote my own words: "Irrigation of the pleural cavity can be performed through the aspirating needle on the syphon principle. Aspiration, sometimes assisted by what may be called 'aspiration-irrigation,' may be the means of effecting a cure when the infection is not too severe."

I am, Sir, yours faithfully,
R. BERTRAM BLAIR, M.B., F.R.C.S. Edin.,
Honorary Assistant Surgeon, Hull Royal Infirmary.
Albion-street, Hull, April 1st, 1920.

TUBERCULOSIS AND PENSIONS.

To the Editor of THE LANCET.

SIR,—Dr. John Guy's note on the Diagnosis of Tuberculosis in Recruits and Pensioners in your issue of March 27th deals with a subject of great importance and one which has been repeatedly discussed by the North of England Tuberculosis Society. My own experience is similar to Dr. Guy's, and my figures, compiled up to Dec. 31st last, show that of 313 ex-Service men who applied for sanatorium benefit 180 had had tubercle bacilli demonstrated in their sputum, and of the remainder 43 had signs of presumptive tuberculosis, while 90, or 28·7 per cent. of the total applicants, showed no evidence of any active tuberculous disease. Surely we have already a sufficient number of tuberculous patients without dissipating our funds on individuals for whom the sanatorium benefit provisions of the Insurance Act were not intended. If, and when, the proposed farm and industrial colonies and village settlements are instituted it is to be hoped that all applicants will be required to undergo a rigorous and searching examination to ensure that the facilities provided will be offered only to persons who are suffering from, or have recently suffered from, clinically recognisable tuberculosis. I am, Sir, yours faithfully,

W. H. DICKINSON,
Tuberculosis Medical Officer, Newcastle-upon-Tyne.
March 30th, 1920.

A WAR MEMORIAL TO BELGIAN DOCTORS.—From *Le Scalpel* for March 27th we learn that the project for a war memorial to Belgian doctors and pharmacists who died or were killed on active service is being energetically conducted by Dr. Clément Philippe. It is proposed to erect a monument in granite in the Place des Barricades at Brussels, near to the statue of Vésale. M. Cancel has been entrusted with its design and execution.

INFLUENZA IN ZURICH.—The epidemic of influenza in Zurich (population 210,000) has now come to an end. 14,534 cases have been reported since Jan. 4th. The total number for January was 1071; in February the records of the four weeks showed 2721, 4140, 3341, and 1899 cases respectively; in March the decrease was rapid, 866, 442, and 45 cases being notified in the first three weeks. The total number of deaths, mostly due to pneumonia, was 229, a mortality of 1½ per cent. In the Canton of Zurich (population 579,000) 141 cases of encephalitis lethargica have occurred, with a mortality of about 30 per cent.

The Services.

ARMY MEDICAL SERVICE.

Temp. Hon. Col. Sir J. Lynn Thomas (Major, retired, T F), relinquishes his temporary commission and retains the honorary rank of Colonel.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Col. J. G. Gill relinquishes the acting rank of Colonel.

Major C. R. L. *Ronayne relinquishes* the temporary rank of Lieutenant Colonel

Major and Bt. Lieut Col. F. D G Howell to be temporary Lieutenant Colonel whilst specially employed.

Temp Capt H. S. Davidson relinquishes the acting rank of Lieutenant Colonel.

Major L. A. A. Andrews to be acting Lieutenant Colonel.

Temp. Capt (acting Major) H F N. Scott relinquishes his acting rank.

The undermentioned relinquish the acting rank of Major Capts. E. C. Beddows, H E. A. Boldero, W P Croker; Temp. Capts. C. A Dottridge, R. Scott, O. J. Day, R L Crabb, P. Murphy.

Capt. G D'R. Carr is seconded for service with the Egyptian Army.

Officers relinquishing their commissions:—Temp Major T. M. Carter (Lieut.-Col, T.F Res) (granted the rank of Lieutenant Colonel); Temp Capt C. A. Masson. Temp. Capts (granted rank of Major) A. J Ferguson (acting Major), A W. Rattrie, E J Selby, L ap I Davies, Temp. Capts (retaining the rank of Captain) W H. Weir, C. H. Bryan, H. G. R Jamieson, R. R Watts, A. L Home, G. T Foster Smith, J. H Dove, B. G. Reynolds, T. W. Mason, C. L Miller, I W. Magill, C. B. Jones (acting Major), H. A. Haig, J. Buchanan, H R S Van Ryck de Groot, J. Wright, J B Fisher, J H. K Sykes, C Samut, C. E. W. Wilmot, A. W. Hendry, N. W. Gilchrist, C. G. Munro, H. B. Taylor, F. A. Osburn, R G. Struthers, F. P B MacTavish, F McG. Loughnane, J. Butterworth, J. W. Simon, T G. Dickson, T. D Morgan, F. W. Jackson, A. D. Moffat, F. W. Stuart, W. S. Booth, H. Somerville, Temp. Hon Capt B. E. Hawke (retains the honorary rank of Captain).

SPECIAL RESERVE OF OFFICERS.

Capt G Young relinquishes the acting rank of Major.

Lieut. W. Y. Eccott to be Captain.

TERRITORIAL FORCE.

Capt A. Sutcliffe is restored to the establishment.

1st *Southern General Hospital*. Major W. Kirkpatrick is restored to the establishment.

2nd Southern General Hospital: Capt A. G. T. Fisher is restored to the establishment.

TERRITORIAL FORCE RESERVE

Major C. A. Stidston, from 3rd North Midland Field Ambulance, to be Major

ROYAL AIR FORCE.

Medical Branch.—Wing Commander C. B. Heald relinquishes his temporary R A.F. commission on ceasing to be employed.

The undermentioned are transferred to the unemployed list: Capts I. M. Thomson and L. C Smith.

THE HONOURS LIST.

A very lengthy list of promotions in and appointments to the Most Excellent *Order of the British Empire* (civil division) for services in connexion with the war is published in the *London Gazette* of March 30th, and includes the names of the following members of the medical profession.—

K B E

Balfour, I B, F R S
Hodsdon, Maj J W B, C B E
Wallace, Bt Lt Col D, C M G, C B E
Webb, Bt Col A L A, C B, C M G

C B E

Abbott, F. C
Ackland, R C
Barr, Lt Col Sir J
Brown, R C, O B E
Cairns, W M
Caton, R
Coates, Col W, C B, V D
Cresswell, J E, M B E
Edridge-Green, F W
Evans, E L
Goodfellow, T A
Gossage, A M
Granville A, C M G
Griffith, W S A
Groves, C N
Howell, J
Howlett, E H
Johnstone, R W, O B E
Jones, D R
Kerr, J R
Laird, W
Mummery, J H.
Newbolt, G P
O Brien R A
Porter J F, J P
Rees, H, J P
Roberts, G A
Robinson, J, J P.
Rowland, F M
Snowden, Maj A de W
Sutherland, G A
Walker, Surg Col F J, O B E, V D
Washbourn, W
Williams, D

O B E

Adams, E W
Allan, H W
Angier, F L
Arthur, Rev J W
Ashford, W
Baiss, L A
Barclay, A E
Barnes, E G
Barnes, L S
Bates, W R
Beath, D L
Begg, A C
Belben, F
Berry Maj H P, T D
Bott, H, V D
Bottomley, F C
Briggs, H
Brightman, Maj F
Brown, H H
Browne, H W L, J P
Brydone, J M
Bythell W J S
Calwell, W
Cardew, G A, V D
Carter, E G
Chapman, W
Christian L de B
Colt T A
Cooke, J G
Cooper H M
Cotton, C
Crossman, F W
Cuffey, E
Curtis, F
Davies, A V, M B E
Davies, J D
Deane, C C, J P
Dearden, C R
Dickson, R S
Dill, J F G
Dodds, L G
Dodds, Miss M J
Domville, E J, J P
Dudley, G J
Edwards, P
Fenton, W W
Folker, H H
Francis, A G
Francis, H
Fryer, G E
Furner, W
Galloway, A R
Gilfillan, S J
Gordon, A S
Gordon, G R
Green, E C
Gregory, A J
Grierson, G A
Hall R M
Hendriks C M
Hewer, C M
Hewer, E S E
Hill, A
Hinnell, J S
Hooper, A
Hooper, G H J
James, G P
Joynt, Lt Col R L
Kerr H
King J C
Lansdown, C E
Leighton, Lt Col G R
Lendrum, J B
Leslie, L F
Lewis L J P
Lloyd F S
Lodge S D.
Lowe P R
Lowis, H L
Lyndon, A
McIlroy, Miss A L
Manning Maj N S
Marshall, H
Mason A, M C
Merry W J C
Miles, A
Millar, J
Milligan, Maj R A, J P
Millson, G
Modlin, I G
Morris Miss F M M B E
Murray Maj J
Nicholls, F L
Nunneley, *Maj* F P
O Donovan, W J
Olive, E J P
Ord, W W
Orr, J
Panckridge, W. P
Paton, B L
Penrose, N C
Perry, E V, J P
Picton, L J.
Prance, G H
Priestley, R C
Quennell, R W
Richmond, D
Rob, J W
Robb, Capt J J
Romer, R L
Scarr, G, J P
Scott, C R
Selby, E W
Shaw, W V
Shore, T W
Simpson, Maj J B, T D
Sinclair, J D
Smeeton, C W
Smith, H W
Spence, J B
Stainthorpe, W W, J P
Sterry, Maj J
Thom J M, J P
Thomas, W, J P
Thomas W E
Ticehurst N F
Tuckett W R
Turner P D
Valerie, Capt J
Veitch R McL
Visger, C
Wainwright G B
Walker, Capt J W
Wallace, J M B E
Walters, H B
Watson, G T
Westwood, A
White J A T
Whittingdale, J F
Whittingham, Miss H K
Wilkins Col T J H
Willoughby, J F D, J P
Young, Maj W, V D

M B E.

Abbott, T B
Anderson, G R
Anderton J E
Andrew, B H
Annett H E
Armytage, F F
Atkinson, J P
Baily, E
Barker, Lt Col F R
Berkley, E J G
Bishop, W H
Bowman, R O
Burges, F A L E
Burnett, E J
Burrowes, H A, J P
Butler, H B
Cant, W E
Carvell, J M
Clarke, A E
Cran, G, V D, J P
Dalton, J H C, J P
Day, G
Dempster, W T
Dent, Maj H C
Dewhurst, J H
Dey, A
Dicks, E J C
Dobie, H
Dowsing H L
Drapes, T L
Duggan M
Dunderdale, R H W
Dyson, J R H
Edmunds, F
Edwards, B E J
Edwards, R B
Elliott, A C
Evans, H L
Evans, W O
Fawssett F
Felton, E H
Forman, B G
Forrest, A W
Fraser, Miss S L
Gardiner, H W
Garry, T G
Gibson, Capt J A
Given, J C M
Gosse, H W
Graham, Lt Col R B, V D, J P
Gunn, G
Hainworth E M
Halliwell, J
Harris, A
Hayne, L B
Healey J E
Hunt, A H W
Iredale, J
Jackson, D N
Jackson E S
Johnston, C S
Jones, J, J P
Jones, O T
Kilner, C S, J P
King Edwards, T R
Langford, *Maj* F C
Langley, G J
Ledingham, A
Lloyd, Lt Col J D, T D, J P
Macall W N
Macdonald, J, J P
McFadyen, D, J P
Mackenzie, K C
MacLeod, H H B
Mactier, H C
March, J O
Marsden, H H
Martin, W, J P
Maurice, W B, J P
Mitchell, R
Mooney, A P, J P
Murphy, J
Normington, A E
Oldham, H F, J P.
Orford J
Orme, Mrs M
Oyston W I
Parsons, C O C
Parsons, J E H
Petherick, W
Philpot, J H
Pilcher, C W
Priest, J D
Prowse, J S
Randell, R M H
Sawdon, F R
Scanlon, L E
Scholefield, G E
Scorer, F
Scott, A T
Selby, T J
Shaw, R H
Southam T F
Stewart, D, V D
Stewart, W G
Stokes, R D
Sykes, C H
Thorman, W H
Thorne C A, J P.
Tonge, E
Vine, A B
Walker, E
Walker, R F
Wallace, J T.
Ward, E
Ward, H P
Watkins, A M
Whitehouse, E St. J.
Williams, E R
Williams, R
Woodcock H C.
Woodhead, H. M.

ST. GEORGE'S HOSPITAL, MALTA, 1915–17 · REUNION DINNER.—A dinner will be held in London on June 10th for medical officers, sisters, and V.A D. nurses of the hospital, and other officers who were members of St George's Mess. Lieutenant Colonel A. de C. Scanlan, C.M G, *will* take the chair. Those desiring tickets (price 10*s*) are asked to write to Miss D. C Hare, M.D, 1, *Bickenhall Mansions*, W. 1, *or* Dr. Neill Hobhouse, 146, Harley street, W. 1, enclosing remittance, *before* May 20th.

Obituary.

GEORGE ARTHUR WRIGHT, B.A., M.B. OXF., F.R.C.S. ENG.,

EMERITUS PROFESSOR IN THE VICTORIA UNIVERSITY OF MANCHESTER; HONORARY CONSULTING SURGEON, MANCHESTER ROYAL INFIRMARY AND MANCHESTER CHILDREN'S HOSPITAL, PENDLEBURY; LIEUTENANT-COLONEL, R.A.M.C. (T.F.).

Professor G. A. Wright died on March 23rd at Sidmouth, where he had made his home on retiring from Manchester. He was in his sixty-ninth year, his death being the result of pneumonia after only a few days' illness, although he had for years suffered from asthma. In him surgical practice has lost a scholar, an investigator, and a master of his subjects.

George Arthur Wright was son of the rector of Vange, in Essex, where he spent his early years. He went to Marlborough and Oxford, taking a first-class degree in natural science. He graduated M.B. Oxf. from Guy's Hospital in 1877, becoming F.R.C.S. in the following year, and holding resident surgical appointments at his hospital. It was in the year 1880 that he began his career in Manchester as resident surgical officer at the old Royal Infirmary. Two years later he was elected honorary assistant surgeon with charge of out-patients, but 18 years elapsed before his turn came for promotion to the full staff. It was during this period that his original work was mainly done. He treated trigeminal neuralgia with much success by the injection of osmic acid. He was an advocate of early movement of joints near the seat of fractures. From 1882 on he was honorary surgeon at the Pendlebury Children's Hospital, he and the late Henry Ashby making a great name for this hospital and for themselves by their work. Wright produced a monograph on Hip Disease in Children in 1887, and in 1889 there appeared the first edition of the classic "Ashby and Wright" on Diseases of Children. While tuberculous bone disease in children interested Wright most—he was one of the first to treat spinal abscesses by evacuation without drainage—he covered the whole ground of surgical anatomy in a handbook published jointly with Mr. C. H. Preston in 1902. Soon after his succession to the full staff of the Royal Infirmary he had to give up his active connexion with Pendlebury, but as consulting surgeon ever retained his active interest in its welfare and progress. In 1900, after holding for some years lectureships in operative and practical surgery in the University of Manchester, he was appointed to the chair of systematic surgery vacant on the death in South Africa of Professor Tom Jones. This post he filled with distinction till 1911, when on retirement under the age rule his services were recognised by the University with the title of Emeritus. The transfer of the Royal Infirmary from its old home in Piccadilly to the new site in Oxford-road took place while Wright was senior surgeon, and he took a large share in the negotiations and in the planning of the new buildings. While teacher of surgery he examined at his old University of Oxford, and also at Birmingham and Liverpool, besides being an internal examiner at Manchester. He served for many years on the Council of the Royal College of Surgeons of England.

Professor Wright made for himself a well-earned reputation as a teacher of clinical surgery, and his ward classes were largely attended. He could not tolerate sham or attempts at concealment, for he was singularly out-spoken himself, expressing his opinions regardless of consequences. His lectures were no mere text-book transcriptions, but were founded on his own wide clinical experience, and he never tired of advising the student to read surgical classics, such as Hilton's "Rest and Pain." His interest in all that affected medical politics was great, and it was characteristic of his outlook that he was not always to be found in the camp of the majority. He took especial interest in the foundation of the National Medical Union and presided over it for some years. His interest in his students was shown in friendly talks at his own home over class examination papers, and by his long and at last successful efforts to found a senior medical students' hostel in Manchester. Lister House owed much to him, and many students now on the staff at Manchester or elsewhere look back gratefully to pleasant afternoons and evenings at his house in Oxford-road or at Bowdon and Holmes Chapel. As a colleague he was a firm friend, with generous and kindly instincts. No consultant in the North was so often invited to settle ethical disputes amongst his brethren, and he used to favour the institution of a course of lectures on medical ethics. He was, apart from professional life, an enthusiastic sportsman, and while still engaged in active practice it was his custom for many years to spend the week-ends at his cottage in Cheshire, where he took a great interest in gardening, and had abundant opportunities of indulging in his favourite pastimes, shooting and fishing.

Sir William Thorburn writes: "George Arthur Wright came to Manchester in 1880, and from the first impressed himself upon the profession as a man of exceptional ability and of great personal charm. I was a medical student when I came under Wright's influence, and can never forget his clear and lucid teaching, his patient sympathy, and his devotion to the interests of the medical school of which he was to become so great an ornament. Perhaps the happiest work of Wright's life was done at the Children's Hospital at Pendlebury. Himself childless, he was devoted to the young, and a true lover also of animals. With children he was a universal favourite, and the surgery of childhood was his main preoccupation. No doubt his painstaking and accurate observations in connexion with the surgery of the hip-joint have called for modifications with the progress of time, but he laid the basis of much of our present knowledge, while his work, written in conjunction with his intimate friend, Henry Ashby, upon Diseases of Children, will be a permanent monument. Wright took a most active interest in all matters of public importance in connexion with the profession. Of strongly conservative views, he was unbending in his advocacy of whatever he believed to be the right course, but he never failed to hold the esteem and even the affection of his most bitter opponents. His honesty of character and his loving and affectionate disposition endeared him to all. As a colleague the strongest impression which he gave was that of *reliability*; his surgical opinion was always sound and carefully reasoned; his clear and direct vision were unfailing. Whatsoever his hands found to do he did it with his might."

When the scheme of Territorial hospitals arose, Wright was selected in 1908 as first administrator of the 2nd Western General. This post he had already given up before the war, but his interest in military surgery never waned and he returned from retirement to take charge of a Red Cross auxiliary hospital at Worsley Hall, and later was appointed to command the surgical section of Queen Mary Hospital at Whalley, with his old rank of lieutenant-colonel. Retiring finally to Sidmouth in June of last year, he did not long survive to enjoy the fruits of leisure. His body was cremated at Golders Green. At a meeting of the board of management of the Manchester Royal Infirmary, on March 30th, a resolution was passed expressing appreciation of Mr. Wright's long and fruitful period of work at the infirmary, and sympathy for his widow.

ROYAL INSTITUTION OF GREAT BRITAIN.—Major G. W. C. Kaye will deliver the first of two lectures on Recent Advances in X Ray Work on April 13th, at 3 o'clock.

DONATIONS AND BEQUESTS.—The late Mr. Francis Wakefield Russell Skey, of Maida Vale, W., among other bequests left £2000 each to St. Bartholomew's Hospital and the Prince of Wales's Hospital Fund; £1000 to the Essex County Hospital, and ultimate residue of about £20,000 to St. Dunstan's Hostel for the Blind.—The late Dr. Cecil Rupert Chaworth Lyster, one of the pioneers in X ray investigation, has left £100 to the Middlesex Hospital Medical School to endow a prize for physics.

Medical News.

UNIVERSITY OF DURHAM: FACULTY OF MEDICINE.—At the Convocation held on March 27th the following degrees were conferred:—

Doctor of Medicine (Essay)—Frederick John Nattrass and Harry Reah.
Doctor of Medicine for Practitioners of 15 years' standing—Charles Edwards, David Fyfe, John Livingston, and Richard Galway Murray
Doctor of Hygiene—William Henry Rowell
Bachelor of Medicine and Bachelor of Surgery—Tom Hugh Ronald Anderson, Paige Canney Arnold, Neil Robertson Beattie, John Francis Carter Braine, Robson Christie Brown, John Hotherington, George Hurrell, and Carl Damien Newman
Bachelor of Medicine—Arthur Patterson
Bachelor of Surgery—James Dixon Johnson
Bachelor of Hygiene—Sidney Scott and Arthur Henry Towers
Diploma in Public Health—Sidney Scott and Arthur Henry Towers
Licence in Dental Surgery—James Leslie Liddell

UNIVERSITY OF LIVERPOOL: LIVERPOOL SCHOOL OF TROPICAL MEDICINE.—The Senate has awarded the Diploma in Tropical Medicine of the University of Liverpool to the following:—

W J W Anderson, M D Leeds, C E Cobb, L R C P Lond, M R C S, Enid M M Cobb, L R C P Lond, M R C S D D. Fernandes, L R C P & S Edin, L R F P S Glasg, P T J O Farrell, L R C P & S Irel, E A Renner, M B, Ch B Edin, and J C Vaughan, M B, Ch B Glasg

UNIVERSITY OF DUBLIN, SCHOOL OF PHYSIC, TRINITY COLLEGE.—At examinations held recently the following candidates were successful:—

FINAL MEDICAL EXAMINATION

Part I, Materia Medica and Therapeutics, Medical Jurisprudence and Hygiene, Pathology—Eric Sealy Horgan (high marks), Eric Richard Murray (high marks), Leo Herzenberg (high marks), Hector Charles Chatterton Deane, Edith Florence Willock, Patrick Mary Joseph Bobbett, Constance McIlrath, Leo Vincent Clifford, Donald Victor Latham, Michael Raphael Coolican, Thomas Whelan Panter, and Rita Dillon-Leetch
Materia Medica and Therapeutics, Medical Jurisprudence and Hygiene—Alfred Henry Norman Todd and Vera Gladys May Menary
Pathology—Doris Holland
Pathology, completing Examination—Francis Young Pratt, Robert Henry Joseph Mulhall Corbet, James Daly Leahy, Richard Wood Power, Robert Sturgeon Chapman, Alfred John Beckett, and John Mervyn Semple
Part II, Medicine—Philip Jabkovitz, Bernard Moshal, George Hall Davis, Henry Allman Lavelle, Adrian Johannes Louw Snyman, Salmon Louis Feldman and William Bernard Joseph Pemberton (equal), Joseph Ballantyne Maguire, William Theodore Micks, Athanas Blagoff, Arthur Isaac Steyn, Francis Healy and Daniel McElwee (equal), Samuel Reginald Hill, Johannes Marthinus Benjamin de Wet, Herbert Victor Exner, Richard Esmonde Murphy and John Farneworth Sheppard (equal), Elsie Anna Burns, and Johannes Philippus de Villiers
Surgery—Salmon Louis Feldman, Wonter de Vos Scholtz, George Hall Davis, William Burton Fox, Olive Baile and Frederick William Robertson (equal), Eileen Hilda Dowse and Joseph Hirschmann (equal), Janie Millar Cummins, William Frederick McConnell, Johannes Marthinus Benjamin de Wet, John Farneworth Sheppard, Daniel McElwee, Essie Stuart Smyth and John Richard Waugh
Midwifery—Henry Allman Lavelle (high marks), Bernard Moshal (high marks), Adrian Johannes Louw Snyman (high marks), George Hall Davis (high marks), Frederick Ziervogel Van der Merwe, Maurice Nurock, Johan Frederik Wicht, Herbert Victor Exner, Johannes Cornelis Coetzee, Eric William Swain Deale and Francis Victor Small (equal), Christopher John Laurence Brock, Johannes Marthinus Benjamin de Wet and William James Alexander Russell (equal), Moira Mary Brown, Doris Louisa Graham, Elsie Anna Burns, and Isaac Levy

DIPLOMA IN PUBLIC HEALTH

Part I, Bacteriology, Chemistry, Physics, and Meteorology—Cornelius Charles Boyle, Charles Joseph McCarthy, Patrick Rock, James Lyons, Thomas Declan Power, Matthew Joseph Graham, Percival Atkin Dormer, Charles Henry Comerford and John Francis Gaha and Charles Edward Pengelley (equal), Alfred Henry Price and Edwin Lawrance Sturdee (equal), William Benjamin Walker, and Mary Christina Sheppard
Part II, Sanitary Engineering, Sanitary Inspection and Report, Hygiene, Epidemiology, Vital Statistics, Public Health Law—Thomas Declan Power, Charles Joseph McCarthy, Edwin Lawrance Sturdee, James Lyons, William Benjamin Walker, Norman Parsons Jewell, George Francis Innes Harkness, Percival Atkin Dormer, Cornelius Charles Boyle, William Henry Sutcliffe, and George Oliver Fairtlough Alley

ROYAL MEDICAL BENEVOLENT FUND.—The annual meeting of the Fund was held on March 16th, with Sir Charters Symonds in the chair The financial report presented showed that donations and subscriptions exceeded by £196 those of the previous year, the total amount distributed being £2532. Attention is drawn in the report to the need of an additional £1000, since owing to the increased cost of living it is necessary to increase the amount of the grants. Up to the present only about 7 per cent of the medical profession have contributed to the Fund. The annuitants now number 178. The War Emergency Fund has distributed a total amount of £8540 Sir Thomas Barlow was elected president, Sir Charters Symonds honorary treasurer, and Dr. G Newton Pitt honorary secretary for the ensuing year. Donations and subscriptions may be sent to the honorary treasurer, at 11, Chandos street, Cavendish-square, London, W.1.

At the last meeting of the committee of the War Emergency Fund, Sir Alfred Pearce Gould in the chair, grants amounting to £800 were made to seven of the applicants. This Fund considers applications from demobilised R.A.M.C. officers, with a view of assisting them to re establish themselves in their practices.

KING EDWARD'S HOSPITAL FUND FOR LONDON.—A Statistical Report Committee, consisting of Sir Arthur Stanley (chairman), Sir Cooper Perry, and Mr. Leonard L. Cohen, has been appointed to consider suggestions for the enlargement or improvement of the Fund's statistical report, and to make recommendations

HARVEIAN SOCIETY.—The next meeting of this society will be clinical, and will be held at the Maida Vale Hospital for Nervous Diseases on Thursday, April 15th, at 5 30 P.M.

LEICESTER MEDICAL SOCIETY.—A short course of post graduate study has been arranged to start on Tuesday, April 13th, continuing every Tuesday until May 11th. Lectures will be given by Dr. W. Langdon Brown on the Sympathetic Nervous System and the Ductless Glands, Glycosuria, and Disorders of the Digestive System.

FOOD EDUCATION SOCIETY.—A Conference on the Prevention of Diseases of the Teeth will be held at Manchester on May 13th-15th, 1920, under the auspices of the Food Education Society, Danes Inn House, 265, Strand, W.C.2, from whose secretary full particulars may be obtained.

THE FEDERATION OF MEDICAL AND ALLIED SOCIETIES.—At the monthly meeting of the Executive Council of the Federation held at 11, Chandos street, W, on March 30th, it was resolved to set up an "Advisory Council" composed of the representatives of all the corporate and individual representatives in order that the views of all the societies coöperating should be more readily available to the Executive Council. It was resolved to invite the British Medical Association to reopen the conferences between various medical bodies held in May, June, and July, 1919, with a view to securing closer coöperation. A number of medical men were elected individual associates of the Federation. Dr. A. Blackhall-Morison (North London Medical and Chirurgical Society), Dr. E H. M. Stancomb (Southampton Medical Parliamentary Committee), and Dr. G. B. Batten (Sydenham District Medical Society) were elected members of the Executive Council.

QUEEN CHARLOTTE'S HOSPITAL.—Sir Samuel Scott presided at the annual meeting of governors on March 30th. After referring to the loss sustained in the death of Lord Portman, President of the hospital for 30 years, he recorded the increasing demand on the services of the hospital, nearly 2000 patients having been treated during the year in the wards and a similar number attended in their own homes, while over 5000 patients had passed through the antenatal and child welfare departments. In consequence of the continued increase in prices there was a deficiency on the year's working of £2071 As a consequence, the committee was unable to proceed with the new out patient department and other urgently needed improvements. There had been a large increase in the number of medical practitioners, students, midwives, and nurses entering for training, some members of the Colonial and American medical and nursing services having taken out courses on demobilisation He appealed for increased support to enable the hospital to pay off a debt of £11,000 accumulated during the war, and for £100,000 estimated as required to make the hospital adequate to cope with the demands upon its assistance.

NORFOLK AND NORWICH EYE INFIRMARY.—This infirmary is the only hospital in the eastern counties entirely devoted to the treatment of eye diseases At the annual meeting of the subscribers, held recently, the chairman of the committee, Mr. E Knight, said he hoped that in the near future an ophthalmic block would be built in the grounds of the Norfolk and Norwich Hospital, and that, in his opinion, the Eye Infirmary would be in a much stronger position if amalgamated with the hospital. The medical report for 1919, signed by Mr. C. J. Muriel, Mr. Arthur Greene, and Mr. G. Maxted, the honorary surgeons to the institution, calls attention to the inadequacy of the number of beds, and consequent delay in treatment, patients having sometimes to wait months for admission. During the year 244 in patients were admitted, and 13 pensioners sent by the War Pensions Committees The average duration of each patient's stay in hospital was 14 days. There were 235 operations performed. In the out-patient department the total number of attendances was 4727, the number of new patients 1628, and of pensioners 96. The average attendance per day was 31, and the number of accidents 383. The number of pairs of spectacles prescribed was 610. This hospital, like most others, is in want of funds. A sum of £260, realised by a children's fancy dress ball at St. Andrew's Hall, Norwich, during the winter, and two concerts organised by friends of the institution helped to augment the funds, which are greatly in need of further help.

GREAT NORTHERN CENTRAL HOSPITAL.—H.M. Queen Alexandra will attend the matinée at the Palladium on May 24th to celebrate the jubilee of the Ladies' Association of the Great Northern Central Hospital, Holloway. An imposing list of patronesses and patrons has been secured.

EDINBURGH ROYAL INFIRMARY. — The special campaign organised to raise funds for the Royal Infirmary was opened in the City Chambers, Edinburgh, on March 30th. The Lord Provost, Sheriff Crole, and Sir Alfred Ewing, Principal of the University, spoke of the valuable work done by the institution, and of the important part it played in connexion with the nation, the city, and the great medical school of Edinburgh. Expenses had enormously increased; several departments were in urgent need of enlargement and additional equipment; the nursing staff needed to be augmented, and it was sought to reduce the hours for the nurses. In order to do this their numbers would have to be increased. The infirmary supplied a great need, and, moreover, the reputation of the Edinburgh Medical School was largely dependent upon the facilities for teaching in the wards of the infirmary. All these things were pointed out by the speakers. During the past year the directors have been compelled to reduce the deficit by the application of legacies received. The people who benefit most from the infirmary are the workers, some of whom make regular contributions. The sum required is £250,000 for renewals and extensions, and a further £50,000 for the annual upkeep.

ROYAL PORTSMOUTH HOSPITAL.—The report of this hospital for the year 1919 was presented to the subscribers at the annual meeting held in the Town Hall on March 26th. The military wards have been handed back and the hospital has returned to normal peace conditions. The total number of patients treated was 12,062—viz., in-patients 2397, out-patients and casualties 9665. The average cost per bed occupied was £115 2*s.* 4*d.*, and of each in-patient was £6 14*s.* 10*d.*, as compared with £3 16*s.* 6*d.* in 1913. The expenditure upon salaries of nurses, &c., also shows a large increase. The excess of expenditure over income, excluding legacies, amounted to £7386. The number of attendances was 19,847, as compared with 11,144 in 1918 and 8636 in 1917. The number of patients would probably have been greater had it not been for the inadequate accommodation. To meet the increasing demands for general treatment the Portsmouth Corporation have decided to erect temporary additions to the present building. The venereal diseases department has proved a success, and 949 new patients have attended, making a total of 2136 since the opening of the department in February, 1917. The Committee of Management has been reorganised and the working classes have been given a larger direct interest in the control of the institution. This new constitution will, it is hoped, increase the confidence of the public in the government of the hospital and be the commencement of a new era of prosperity.

ROYAL VICTORIA HOSPITAL, BELFAST.—At the annual meeting of the supporters of the Royal Victoria Hospital, held on March 31st, it was shown that the annual report presented more satisfactory features than any previous one except on the financial side. Each intern surgeon had performed about 300 major operations in the year, the total mortality for these operations being only 2·81 per cent. Of the operations 712 were abdominal, with a death-rate of only 5 per cent. A travelling X ray apparatus is being provided by the board of management, so that patients can be radiographed in their beds. The bacteriological department has been made more efficient, and a dental department has been inaugurated. No less than 265 students have enrolled their names. The year ended with a deficit of £5745, and it has been estimated that, owing to the rising prices, a sum of at least £7000 must be provided for the current year's income. It is realised that to secure an annual and certain income for the upkeep of the hospital reliance must be placed on those who get the greatest advantages therefrom—namely, the employers and the work-people. Both these sections of the community in Belfast have made enormous sums of money during the war and are still making good incomes, and for both the Royal Victoria Hospital is an admirable insurance against accidents and disease; they are therefore both asked to give far more generously to its funds.

Parliamentary Intelligence.

HOUSE OF COMMONS.

MONDAY, MARCH 29TH.

An Officer's Medical Appeal.

Mr. BOWERMAN asked the Parliamentary Secretary to the Pensions Ministry whether the claim to a pension by Mr. P. H. Young, late second lieutenant, The Buffs, might be reconsidered in view of the medical evidence presented by this officer to the effect that a contracted muscle in the leg, due to wounds, would never improve.—Sir J. CRAIG replied: This officer was awarded a gratuity under Article 8 of the Royal Warrant of August 1st, 1917, as being disabled to the extent of less than 20 per cent., but in view of the appeal which the honourable Member makes on his behalf arrangements are being made to have him re-examined by a medical appeal board.

Tool-grinders and Fibroid Phthisis.

Mr. WILLIAM THORNE asked the Secretary for the Home Department if he was aware of the death-rate in the tool-grinding and polishing industry; that a large percentage of the men suffered from phthisis; that the men in question were not scheduled under the Workmen's Compensation Act as a dangerous trade; and whether, in consequence of the death-rate and the amount of illness through this virulent disease, he could state if he could see his way clear to have an inquiry into the trade, or if he would have it scheduled as a dangerous trade.—Mr. SHORTT replied: The workers employed in certain sections of the metal-grinding trades do undoubtedly incur serious risk from the disease known as fibroid phthisis or silicosis, and a special inquiry into these trades is already in progress with a view to supplementing the regulations at present in force for the prevention of the disease, and to make a scheme or schemes of compensation under the special powers given for this purpose by the Workmen's Compensation (Silicosis) Act of 1918. The inquiry is a difficult one and has to cover a wide field, but it is being pressed forward as rapidly as possible.

TUESDAY, MARCH 30TH.

Treatment of War Nurses.

Mr. GRUNDY asked the Secretary for War whether his attention had been drawn to the public appeals being made, in connexion with the Nation's Fund for Nurses, for charity for nurses who gave their services to the country during the war; whether the treatment of these nurses had been such as to render appeals for charity necessary; whether he knew or would ascertain the identity of the voluntary aid detachment nurse Juliet, referred to in the public appeal as a nurse who went through the war and who now suffered from bad eyesight and shattered nerves and was in precarious circumstances; and whether, in order to remove doubts, he could make a statement as to the treatment accorded to nurses who served during the war.—Sir A. WILLIAMSON (Financial Secretary to the War Office) replied: Nurses temporarily employed by the War Office during the war have received pay and allowances on appropriate scales, and have been treated in case of disability on the same lines as members of the Queen Alexandra's Imperial Military Nursing Service. The War Office is not responsible for nurses employed by the British Red Cross Society or other organisations. If the nurse to whom the honourable Member refers was employed by the War Office, and he is not satisfied that she has received proper treatment, perhaps he will let me have further particulars.

Medical Officer's Return from Mesopotamia.

Major D. DAVIES asked the Secretary for War whether instructions had been given for the return from Mesopotamia of Captain Milton Jones, R.A.M.C., whose release had been applied for by the Montgomery Insurance Committee; and when Captain Milton Jones's return might be expected.—Sir A. WILLIAMSON (Financial Secretary to the War Office) replied: The General Officer Commanding in Mesopotamia has been informed by cable that Captain Milton Jones is urgently required, and this will be considered in assessing his claim for priority of release. In view of the fact that Captain Jones is 27 years of age and has served since November, 1917, it is not considered advisable to issue orders for his return which would give him priority over other officers of greater age and longer service who are similarly detained in Mesopotamia.

WEDNESDAY, MARCH 31ST.

Ex-Service Men in Public Asylums.

Major ENTWISTLE asked the Minister of Health if he would state how many discharged soldiers and sailors were at present in public asylums; and if it was intended to provide any other accommodation for these men.—Major BAIRD (Under Secretary for Home Affairs) replied: My right honourable friend has asked me to reply The number is about 4000 As regards the second part of the question, so far as I am aware, there is no intention to provide other accommodation for these men, and I am advised that there would be serious objections to treating these cases in special establishments The matter is discussed in the report of the Board of Control for 1917. There is also the important point that under the present arrangements it is possible in many cases to transfer to an asylum closer to his relatives, and a large number of applications for such transfers have been received.

Lieutenant Colonel MALONE. Are not many of these cases not really very serious, and likely to return to complete sanity if they were put into more suitable accommodation?—Major BAIRD I do not think that follows I think they are receiving the best possible treatment likely to lead to their recovery.

Grants in Aid for the Blind

Captain REDMOND asked the Chief Secretary to the Lord Lieutenant of Ireland whether he was aware that the Ministry of Health was now making grants in aid of services for the blind in Great Britain, and that their lordships of the Treasury had promised to ask Parliament to vote an interim grant of £12,000 for services carried on for the benefit of the blind in Ireland; and if he would state when the House would be asked to sanction this amount—Mr MACPHERSON replied The reply to the first part of the question is in the affirmative As regards the latter part, a Supplementary Estimate for the current financial year makes provision, amounting to £7000, for the payment of instalments of grants at a rate not exceeding 50 per cent of the estimated grants for the year.

Tuberculous Soldier in Barnstaple Workhouse

Captain TUDOR REES asked the Minister of Pensions whether he was aware that a discharged soldier suffering from tuberculosis had been in the Barnstaple Workhouse for five months, and that appeals had been made without success to the Pensions Ministry for his removal, and that the man was now in a serious condition; and whether he would take steps to have him removed for treatment to a military hospital or elsewhere—Sir L WORTHINGTON EVANS replied: In the time at my disposal I have not been able to ascertain the facts of the particular case, but as I explained recently in reply to a general question on this subject, when a man enters a Poor law institution for treatment of a war disability notification is at once sent to the Local War Pensions Committee, who take steps to remove him in order that he may be given the special treatment which his disability requires If my honourable and gallant friend will give me particulars of the case I will have immediate inquiry made and will inform him of the result

Captain T REES Is the right honourable gentleman aware that appeals have been made by the Local Pensions Committee in London without any effect?—Sir L WORTHINGTON EVANS My honourable friend has not given me an opportunity to make my inquiries, so that it is obvious that I do not know that If he will give me that opportunity I will see to it at once

Zymotic Diseases at Woodford

Mr R YOUNG asked the Minister of Health how many persons had suffered from zymotic diseases in the Woodford parish of Essex and the number of deaths monthly since April, 1919; and whether the main contributory cause was that in wet weather the sewage conduit pipe leading to the sewerage works of the Woodford Council overflowed into the adjoining ditches and that those ditches had not been properly cleared and cleansed—Dr. ADDISON replied The total number of notifications of zymotic and other infectious diseases in the parish since April 1st, 1919, is as follows Diphtheria, 48, scarlet fever, 38, measles and German measles 26, enteric fever, 1; puerperal fever, 1; malaria, 17, influenzal pneumonia, 20 The only deaths in the parish from zymotic diseases during the same period were five deaths from diphtheria I have no complete information as to the number of notifications and deaths for each month during that period As regards the last part of the question, I am advised that there is no ground for believing that the condition of the sewage conduit pipe referred to is a contributory cause of illness or death from zymotic disease.

Welsh Board of Health Appointments

Mr A T DAVIES asked the Minister of Health what were the important administrative appointments already made in connexion with the Welsh Board of Health, and how many of these, if any, had been given to women—Dr ADDISON replied The only important administrative appointments made in connexion with the Welsh Board of Health are the following: The chairman, the Housing Commissioner, and the Deputy Controller of Insurance have been appointed as members of the Board A medical officer has also been appointed temporarily to the Board The post of secretary has been filled, the secretary being ex-officio a member of the Board

Mr. DAVIES asked the Minister of Health if he had succeeded in finding a suitable woman member for the Board, and if not whether he would take the advice of well known women's organisations on the subject—Dr ADDISON replied I have not hitherto sought to appoint a woman as member of the Board of Health in Wales, because there is no woman member of the staff of the Ministry in Wales with appropriate responsibilities and experience

Influenza

Major ENTWISTLE asked the Minister of Health what steps had been taken, and what steps he proposed to take, with regard to the increase in the number of deaths as a result of influenza—Dr ADDISON replied In the reply which I gave on Feb 23rd to Lieutenant Colonel Raw is contained a complete statement of the steps which have been, and are being, taken for dealing with an epidemic of influenza should it occur. I am advised that the recent small increase in the number of deaths from influenza may be attributed partly to the normal rise which usually occurs at this season of the year, and possibly also to some deaths from pneumonia being ascribed to influenza as a contributory cause It is noteworthy that the number of deaths from pneumonia has remained practically constant each week since the end of January last

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE 1, Wimpole-street W

MEETINGS OF SECTIONS

Thursday, April 15th

DERMATOLOGY (Hon Secretary—Henry MacCormac) at 5 P M

Cases (4 30 P M)

Dr Barber Cases of Lupus Erythematosus treated by Autogenous Streptococcal Vaccine

Other cases will be shown

Friday, April 16th

CLINICAL (Hon Secretaries—T P Legg, S A K Wilson) at 5 30 P M

Cases (at 5 P M)

ELECTRO THERAPEUTICS (Hon Secretaries—Walter J Turrell, Stanley Melville) at 8 30 P M

Mackenzie Davidson Memorial Lecture

Professor Sir Ernest Rutherford Development of Radiology

SOCIETY FOR THE STUDY OF INEBRIETY, in the Rooms of the Medical Society of London, 11, Chandos street, Cavendish square, W

TUESDAY, April 13th—4 P M, Annual Meeting Election of President Council, and Officers for the ensuing Session Discussion on Analytical Psychology in Alcoholism opened by Dr M Nicoll

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST GRADUATE COLLEGE, West London Hospital, Hammersmith, W

MONDAY, April 12th—12 15 P M, Dr Burnford Pathological Demonstration 5 P M, Dr A Saunders Nephritis in Children

TUESDAY—12 noon, Mr T Gray Demonstration of Fractures &c 5 P M Mr Banks Davis Clinical Lecture I

WEDNESDAY—2 P M, Mr Addison Operations 5 P M, Dr Beddard Practical Medicine Lecture I

THURSDAY—2 P M, Mr B Harman Irido-cyclitis 5 P M, Mr Page Anæsthetics

FRIDAY—2 P M, Dr Pernet Skin Department 5 P M Dr G C. Low The Examination of the Fæces in Tropical Disease

SATURDAY—12 noon, Mr Sinclair Surgical Anatomy of the Abdomen 2 P M Dr Owen Medical Out patients

Daily—10 A M, Ward Visits 2 P M, In patient and Out patient Clinics and Operations

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S W

MONDAY, April 12th—2 P M, Dr Melville X Ray Department

TUESDAY—2 P M, Dr D Grant Throat Department 2 30 P M, Demonstration—Dr Punch Advanced Cases

WEDNESDAY—10 30 A M, Dr Punch Demonstration of Museum Specimens 2 P M, Dr Gosse Cardiographic Department 2 30 P M, Demonstration—Dr Wall Advanced Cases

THURSDAY—10 30 A M, Dr Burrell Artificial Pneumothorax 2 30 P M, Demonstration—Dr Burrell Advanced Cases

FRIDAY—2 P M, Dr Melville X Ray Department 2 30 P M, Demonstration—Dr Maitland Advanced Cases

SATURDAY—1 P M, Dr Batty Shaw Special Demonstration in the Out-patient Department

UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE POST-GRADUATE LECTURES, at the Sheffield Royal Infirmary

WEDNESDAY, April 14th—4 P M, Prof Connell Clinical Cases of Bone Lesions

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC

TUESDAY, April 13th—4 30 P M, Lecture—Dr W I Shaw Uterine Hæmorrhage

SALFORD ROYAL HOSPITAL AND ANCOATS HOSPITAL POST GRADUATE DEMONSTRATIONS at the two Hospitals alternately

THURSDAY, April 15th—4.30 P M, Dr Langley Mitral Incompetence and Ability to Work (At Ancoats Hospital)

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to The Lancet *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

Bower, E. D., M.D. Durh., F.R.C.S. Edin. has been appointed Consulting Ophthalmic Surgeon to the Gloucestershire Royal Infirmary.

Hadfield, G., M.D. Lond., Pathologist to the Bristol General Hospital.

Howell, B. W., F.R.C.S., Assistant Surgeon to the Queen's Hospital for Children, Hackney-road.

Lakin, C. E., M.D., F.R.C.P., Physician to the Middlesex Hospital.

London Hospital Medical College: Holland, E. L., M.D. Lond., and Luker, S. G., M.B. Cantab., Joint Lecturers on Midwifery; Culpin, M., M.B., B.S., Lond., Lecturer on Psycho-Neuroses.

Certifying Surgeons under the Factory and Workshop Acts: Hamilton, E. S. B., M.B., Ch.B. Edin (Salford and Stretford); Acheson, D. R., M.B., Ch.B. Belf. (Berkeley); Brocket, J., M.B., Ch.B. Edin. (Stourport); Upward, H. A., M.B., B.C. Cantab. (Romford); Thompson, W. R., L.R.C.P. & S. Edin. (Shelf); Meade, J., L.R.C.P. & S. Edin., L.F.P.S., Glas. (Bruff); Fawcett, R. F. M., L.R.C.P. & S. Edin., L.F.P.S. Glas. (Toddington); Thompson, W. E. (Woburn Sands); Smith, H. G. (Shrewsbury); Scott, A., M.B., C.M. Glas. (Uphall).

Vacancies.

For further information refer to the advertisement columns.

Ashton-under-Lyne District Infirmary.—Two Asst. H.S.'s. £200.

Barnsley, Beckett Hospital.—Jun. H.S. £180.

Barrow-in-Furness, North Lonsdale Hospital.—Second Res. H.S. £225.

Belfast Mater Infirmorum Hospital.—Hon. P.

Birkenhead Borough Hospital.—Sen. and Jun. H.S.'s. £200 and £170.

Birmingham and Midland Ear and Throat Hospital.—Asst. S.

Birmingham City Fever Hospital Service.—Asst. M.O. £350.

Birmingham City Hospital, Little Bromwich.—Med. Supt. £700.

Birmingham City Education Committee.—Aural S. £130.

Brighton, Royal Sussex County Hospital.—Hon. Asst. P.

Burnley County Borough.—Asst. M.O. £550.

Burnley, Victoria Hospital—H.S. £250.

Cardiff, Glan Ely Hospital.—Asst. Res. M.O. £400.

Cardiff, University College of South Wales and Monmouthshire.—Professor of Physiology. £900.

Carshalton, Surrey, Queen Mary's Hospital for Children.—Senior Asst. and Junior Asst. M.O.'s. £645 5*s.* and £515 6*s.* respectively.

Chingford Hospital for Infectious Diseases.—Res. M.O. £325.

Derby, Derbyshire Royal Infirmary.—Oph. H.S. £200.

Dorset County Council.—Asst. County M.O. £500.

Eastbourne Eye Infirmary.—Hon. Oph. S.

Glossop Dale Rural District Council.—Joint M.O.H. £600.

Great Northern Central Hospital, Holloway, N.—H.S. £150.

Hospital for Consumption and Diseases of the Chest, Brompton.—H.P. 30 guineas.

Huddersfield Royal Infirmary.—Asst. H.S. £150.

Hull City Education Committee.—Asst. Sch. M.O. £500.

Hull Royal Infirmary.—Senr. H.S. £200. Also Cas. H.S. £150. Also Asst. H.S. £250.

King's College Hospital, Denmark Hill, S.E.—Med. Out-patients' O. and Surg. Out-patients' O. £250.

Leeds University.—Demonstrator in Exp. Phys. £250.

Leeds Public Dispensary.—Res. M.O. £200.

Leicester Royal Infirmary.—Hon. Asst. P.

Liverpool City and Port.—Asst. Port M.O. £650.

Liverpool, David Lewis Northern Hospital.—Two H.P.'s and One H.S. £150 each.

London Hospital, Whitechapel, E.—Surgical Registrar. £365. Also Medical Registrar. £365.

London Temperance Hospital, Hampstead-road, N.W.—Cas. O. £120.

Loughborough and District General Hospital and Dispensary.—Res. H.S. £200.

Macclesfield, Cheshire County Asylum, Parkside.—Asst. M.O. £350.

Maidstone, Kent County Ophthalmic Hospital.—H.S. £250.

Manchester, Ancoats Hospital.—H.S. £100. Also Res. S.O. £200.

Manchester County Asylum, Prestwich.—Asst. M.O. £450.

Manchester Royal Eye Hospital.—Jun. H.S. £120.

Manchester Royal Infirmary.—Second H.S. to Special Dept. £25 first six months and £50 second.

Manchester, St. Mary's Hospitals for Women and Children.—Hon. Asst. P.

Margate, Princess Mary's Hospital for Children, Cliftonville.—Junior Asst. M.O. £579 14*s.*

Metropolitan Asylums Board.—Junr. Asst. M.O.'s in Mental Hosp. Service. £422.

Middlesbrough, North Riding Infirmary.—H.S. £200.

Mothers Hospital, 153-163, Lower Clapton-road, Hackney, E.—Res. M.O.

National Hospital for Diseases of the Heart, Westmoreland-street, W.—Hon. Asst. P.

Newark Hospital and Dispensary.—Res. H.S. £200.

Newcastle-upon-Tyne, Royal Victoria Infirmary.—Two Hon. Asst. S.'s, two Hon. Assts., and Hon. Surg. Registrar. Also H.P.'s, H.S.'s, and two Accident-room H.S.'s. £50 each, except H.S. to Out-patient Dressing Dept., which is £100. Also Refractionist. £100.

Norwich, Norfolk and Norwich Hospital.—Cas. O. £200.

Paddington Green Children's Hospital, London, W.—S. and P.'s. Also H.P. and H.S. £150 each.

Poplar Hospital for Accidents, Poplar, E.—Asst. Res. S. £120.

Portsmouth County Borough.—Asst. Tuberc. O. £500.

Queen Mary's Hospital for East End, Stratford, E.—H.P.

Reading, Royal Berks Hospital.—Senr. Res. M.O. £350.

Roll of Honour Hospital for Children, 688, Harrow-road, W.—Hon. Asst. P. and H.S. £40.

Royal College of Surgeons of England.—Examiners.

Royal Free Hospital, Gray's Inn-road, W.C.—Clin. Assts.

Salford Royal Hospital.—H.S. £150.

Sheffield Royal Infirmary.—Two H.S's, one Ear, Nose, and Throat H.S. £150.

Shoreditch Hospital, 201, Hoxton-street.—Res. Asst. M.O. £300.

South London Hospital for Women, South Side, Clapham Common, S.W.—Female H.S. £100.

Stamford, Rutland, and General Infirmary, Stamford.—H.S. £200.

Stoke-on-Trent, North Staffordshire Infirmary.—H.S. £200.

Straits Settlements and Federated Malay States.—Thirty-three M.O.'s. $440 per month.

Surrey, Royal Hospital, Richmond.—H.S. £150.

Sutton, Surrey, The Downs Sanatorium.—Senior Asst. M.O. £645 5*s.*

Swansea General and Eye Hospital.—Jun. H.S. £200. Also H.S.

Ventnor, Isle of Wight, Royal National Hospital for Consumption and Diseases of the Chest.—Asst. Res. M.O. £300.

Wakefield Clayton Hospital.—Junr. H.S. £200.

West London Hospital, Hammersmith, W.—Asst. Anæsth.

West Riding County Council.—Sch. Med. Inspec. £500.

Worcester County and City Mental Hospital, Powick.—Jun. Asst. M.O. £300. Also Deputy Supt. £450.

The Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Melksham and at Youlgreave.

Births, Marriages, and Deaths.

BIRTHS.

Aitken.—On March 28th, at Park-street, W., the wife of D. McCrae Aitken, F.R.C.S., of a son.

Anderson.—On April 5th, at "Remony," Chislehurst, the wife of C. E. Anderson, M.R.C.S., of a son.

Burke.—On March 29th, at Central Nursing Home, Dundee, to the wife of E. T. Burke, D.S.O., M.B., Ch.B.—a son.

Garland Collins.—On March 31st, at Carlton Lodge, Snaresbrook, Essex, the wife of F. Garland Collins, Major (late R.A.M.C.), M.R.C.S., L.R.C.P. Lond., D.P.H., of a son.

Jones.—On March 28th, at Coleford House, Coleford, near Bath, Somerset, the wife of Philip T. Jones, M.R.C.S., L.R.C.P., of a daughter.

Moberly.—On March 28th, at Chudleigh, Ewell-road, Surbiton, Surrey, the wife of Alan V. Moberly, M.R.C.S., L.R.C.P., of a daughter.

Nattrass.—On March 31st, at 11, Archbold-terrace, Jesmond, Newcastle-upon-Tyne, the wife of F. J. Nattrass, M.D., of a son.

Peachell.—On April 3rd, at Herrison, Dorchester, the wife of Dr. G. E. Peachell, of a son.

Riddick.—On March 29th, at Sialkot, Punjab, India, the wife of Lieutenant-Colonel G. B. Riddick, R.A.M.C., of a son.

Smith.—On April 3rd, at 75, Broad-street, Barry, Glam., the wife of Mr. R. Eccles-Smith, O.B.E., M.B., F.R.C.S. Edin., of a son.

Tirard.—On March 31st, at Uttoxeter New-road, Derby, the wife of N. S. Tirard, M.B., of a son.

Trotter.—On April 2nd, at Claremont-terrace, Glasgow, W., Dr. Margaret Trotter, wife of Dr. G. Clark Trotter, of a daughter.

MARRIAGES.

Ritchie—Chalmers—On April 3rd, at Mabelbank, Broughty Ferry, W., Douglas David Ritchie, M.D., to Florence Margaret, daughter of Mr. and Mrs. Wm. Chalmers.

Robey—Cecil.—On March 31st, at St. Jude's Church, Southsea, Harry Webb Robey, L.D.S. Eng., to Mabel, third daughter of Mr. and Mrs. C. W. Cecil, of Southsea.

DEATHS.

Roper.—On April 3rd, at "Colby," Lewisham-hill, S.E., Dr. Arthur Roper, in his 82nd year.

Scattergood.—On March 29th, at Highfield House, Menston-in-Wharfedale, Oliver Scattergood, M.A., M.B Oxon., D.P.H. Cantab., M.R.C.S., in his 64th year.

Wills.—On March 21st, at Farnsfield, Notts, Charles Wills, M.R.C.S., L.S.A., aged 76.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

BOOKS, ETC., RECEIVED.

Laurie, T. Werner, London.
The Menace of Spiritualism. By E. O'Donnell. With a Foreword by Father Vaughan, S.J. Pp. 216. 5*s.*
Woman's Wild Oats. Essays on the Refixing of Moral Standards. By C. O. Hartley. Pp. 256. 6*s.*

Maloine et Fils, Paris.
L'Hérédité Romantique dans la Littérature Contemporaine. Par L. Estève. 2nd ed. Pp. 196. 5 fr.

Society for Promoting Christian Knowledge, London.
Moses the Founder of Preventive Medicine. By P. Wood, Captain, R.A.M.C. Pp. 116. 4*s.*

Swarthmore Press, Oxford-street, London.
The Misadventures of Athelstan Digby. By W. F. Harvey. Pp. 191. 6*s.*

Thieme, G., Leipzig.
Die Geschlechtskrankheiten. Ihr Wesen, ihre Erkennung und Behandlung. Von Prof. Dr. K. Zieler. Pp. 182.
Das Hungerödem. Von Dr. C. Maase und Priv. Doz. Dr. H. Zondek. Pp. 135.

Notes, Short Comments, and Answers to Correspondents.

COLONIAL HEALTH REPORTS

Jamaica.

IN a report by Mr Robert Johnstone, acting Colonial Secretary, on the Blue book for 1918-19, the latest estimate of the population is given as 895,578 The birth rate in the year ended Dec 31st, 1918, was 34 1 and the death-rate 33 per 1000 Of the births registered 68 6 per 100 were illegitimate, as compared with 67 7 in the previous year, which was the highest island rate recorded since the introduction of compulsory registration in 1878.

During the last quarter of 1918 influenza and pneumonia visited Jamaica and spread swiftly, the epidemic claiming a heavy toll in every parish, with the exception of Port Royal It reached the greatest intensity about the middle of the quarter and then began gradually to subside 5002 deaths were registered as having been caused by influenza and 547 from pneumonia, but it is probable that a larger number of deaths actually occurred from these causes as a considerable proportion of the deaths registered in the island are not medically certified, and a large number of those that occurred during the prevalence of the epidemic were registered as having been caused merely by fever and cold Of the deaths caused by the epidemic 2702 were of persons of the ages of 20 to 45 years and 1150 of children under 5 years of age Yaws is still very prevalent throughout the island Venereal diseases are also extensively prevalent, and a new law has been passed providing for their compulsory treatment 2797 cases of malaria were admitted to the hospitals The number of cases reported during the year as "vomiting sickness' was 257, of which 242 were found to be instances of ackee poisoning In the other 15 cases the true causes of death were found by the Government bacteriologist to be as follows, viz cerebral malaria, 8 gastritis, 2 malaria and ackee, 1, ptomaine poisoning, 1, fish poisoning, 1, nephritis, 1, convulsions, 1

The total number of cases of all kinds admitted to public general hospitals during the year under review was 21,100 and amongst these there were 1165 deaths In addition, 3800 indoor and 16 106 outdoor patients were treated in the Kingston Hospital The number who attended the evening clinics in connexion with the treatment of cases of venereal disease was 2731, and the number of attendances was 9909 17,153 prescriptions were made up and 1598 intravenous injections were administered There were 113 patients in the Lepers Home on March 31st, 1918, and 20 were admitted during the year, while in the same period 1 absconded and 16 died

Grenada.

The estimated population at Dec 31st, 1918, was 73,881. The birth rate for the year was 34 66 and the death rate 17 08 per 1000 The mortality among children under 2 years was 38 4 per cent of the total of all deaths

The public health of the colony was reported by the colonial surgeon to be on the whole satisfactory The year was marked by the adoption of vigorous measures for the eradication of the loathsome diseases of syphilis and yaws It is stated in connexion with the treatment of venereal disease by injections of novarsenobillon that patients submitted willingly and latterly came forward voluntarily asking for injections The cases of venereal disease and syphilis treated amounted to 1579 of which 220 were discharged as cured The kindred complaint of yaws was also attacked by an intensive treatment with novarsenobillon ' It is said the disease in its worst forms succumbs in a short time to the effects of this drug The results are reported to be so encouraging as to hold out every hope that in a comparatively short period the disease will practically cease to exist in Grenada

The acting Colonial Secretary (Mr E D Laborde) adds in his review of the Blue book for 1918 19 'The colony can be described as an extremely healthy one for Europeans as well as for those born and bred in these parts The climate is mild, and in the dry season is salubrious and pleasant This period usually lasts from January to the end of May when the rains commence The latter part of the year is sometimes damp and as a rule, hot Daylight never exceeds 13 hours, and there is not more than an hour's difference between the longest and the shortest day The island is south of the hurricane zone and has been, fortunately, free from any cataclysm or seismic disturbance The last earthquake of any severity occurred in 1888 The temperature in the shade varied in 1918 from 69° to 90° F The rainfall was 81 40 inches, 3 77 more than the average in the three preceding years

LUNATIC ASYLUMS IN BENGAL, 1918

THE average population of the lunatic asylums in Bengal during 1918 was 1079, the admissions and readmissions numbering 334, an increase of 50 over those of the previous year The daily sick averaged 87 4 per 1000, and the deaths numbered 104, or 9 63 per cent, an increase over the ratio for 1917, which was 7 91, 29 of these deaths occurred amongst the new admissions, mostly attributable to their miserable state of health on arrival at the asylums The discharges numbered 319, of whom 151 (or 13 99 per cent of the total strength) were cured, 28 improved, 97 transferred, and 1 escaped No details are given as to the health of the asylum inmates, though it is stated that the year was particularly unhealthy. There were 104 deaths (96 3 per 1000), compared with 79 1 per 1000 in the previous year; tuberculosis accounted for 35 Influenza affected both the Berhampore and Dacca Asylums, where there were respectively 45 and 46 cases, but with only 2 deaths in the former and none in the latter asylum Colonel J. K. Close, I M.S, states that a new hospital is required at the Berhampore Asylum, the building at present used being a very old barrack, quite unsuitable for a hospital.

SANITATION IN INDIAN FACTORIES.

FROM the report on the working of the Indian Factories Act in Bengal, Bihar and Orissa, and Assam for 1918 we learn that water supply and ventilation are generally satisfactory and the sanitary arrangements fairly adequate. The septic tank system is in process of welcome installation, and there will soon be very few of the large textile factories in which the old insanitary hand service is retained Good filtered water supplies are generally provided Patterson gravity filters have been installed at a cost of Rs 125,000, supplying 20,000 gallons per hour to the Kelvin and Empire Jute Mills, the adjoining coolie lines and bazars, and thereby benefiting some 20 000 people; a similar installation, with a capacity of 12,000 gallons per hour, has been completed for the Kinnison Mills at a cost of Rs 50,000 The housing and general welfare of the factory operatives is receiving increased attention, and considerable sums have already been expended on improvements in the native villages, or *bustees*; the need for this is urgent At a recent inspection of coolie lines attached to a jute mill it was found that on an average ten persons were living in each room having an area of 10 × 14 ft The influenza visitation rapidly spread among the mill operatives around Calcutta, but was fortunately of short duration, "due largely to the special measures taken by mill managers to suppress the epidemic " Medicines and medical attendance were given freely An effective campaign against hookworm disease has been initiated by the Governor of the Province, with the coöperation of all the leading industries, and the jute mill companies have undertaken to provide 2000 rupees annually towards research work in connexion with the tropical diseases that interfere with the regular working of the labour force in factories

Mr. R P Adams, O.B E, Chief Inspector, who presents this report, states that during the last three years of the war industrial development has made considerable progress in these provinces, notwithstanding the difficulties in obtaining structural material and machinery from England and America Some new industries were started and others greatly expanded to meet the conditions caused by the war. The stimulus arising from these conditions has caused home manufacturers to consider the advisability of opening factories in India connected with their home concerns, and a big development may be expected in this direction

HEALTH OF BOMBAY JAILS, 1918

THE chief causes of sickness and death in the jails of Bombay Presidency during 1918 were influenza and its resulting pneumonia For the total jail population (average daily number of prisoners) of 12 095 the death ratio was 58 5 per 1000, as compared with 18 7 per 1000 in 1917 but if the influenza ratio of 36 per 1000 be deducted, the remaining ratio of 22 5 is but slightly in excess of that for the preceding year The general death rate for the population of Bombay Presidency is stated to have been 88 05 in 1918, compared with 40 76 in 1917 Several prisons were overcrowded throughout the year, relief being afforded by the use of tents, verandahs, and worksheds, or by transfers to other prisons Improvements were made in the dietaries, and warm clothing issued when considered necessary Not a single case of cholera occurred, and only 4 cases of plague, dysentery caused 307 admissions to hospital, a ratio of 31 8 per 1000 (with 10 deaths), compared with 418 admissions (44 6 per 1000) and 11 deaths in 1917. There were 184 2 admissions and 0 7 deaths per 1000 from malarial fevers, compared with 186 3 and 0 9 in 1917 Pulmonary tubercle showed an increased number of admissions (63, compared with 48 in 1917), but the deaths were 19 only, compared with 24 It is stated that at least 38 of these cases of tubercle contracted the disease outside the jail. At the "*Borstal*" juvenile jail, Dharwar, the boys are taught carpentering and other trades They take a pride in their gymnastics and drill and have started cricket

Colonel H. E Banatwala, C S I, I M S (retired), who presents the report, states that out of a total of 20,183 prisoners discharged from the Bombay jails during the year 55 3 per cent gained weight, 21 2 per cent lost weight, and 21 6 per cent remained stationary

BRITISH OPHTHALMIC HOSPITAL, JERUSALEM.

THE work of this hospital is increasingly heavy and the administration is urging the Order of St John to extend its activities in combating the ravages of eye disease in the Holy Land Captain Charles R B. Eyre, R A M C, has been appointed assistant surgeon to this hospital

CHLOROFORM BY THE OPEN METHOD.

A CORRESPONDENT, who in 1902 was advocating the open method of chloroform administration, thinks that it is time for us to confess that this is "universally accepted as the best mode." In a further communication he adds that "an editorial comment made 17 years ago has been proved to be utterly fallacious." Follows the quotation "*Audi alteram partem.*" In 1902 we were comparing this method with more accurate procedures to the detriment of the former, and the premiss on which we are asked to plead guilty of having been unintelligent in years gone by—quite an easy thing to apologise for—is unsound. It is not universally accepted that what is called the "open" method is the best. By the open method our correspondent means, we presume, that which is conducted by means of a drop-bottle and a Skinner's or similar mask. Now we believe that fewer anæsthetists to-day employ this method in preference to giving chloroform from a Junker's or Shipway's or Vernon Harcourt's apparatus than was the case in 1902. Moreover, when experts employ the open method they do so with confidence because of the knowledge gained from the employment of these percentage-dose machines. Further, there is scarcely one of them but would recommend the machine rather than the drop-bottle for general use by the student or the comparatively inexperienced administrator. Actually, the practice of to-day tends to eliminate chloroform more and more, particularly in the induction of anæsthesia. We believe that our views of 1902 are upheld by the practice of 1920.

GERMAN MEDICAL PRACTICE IN THE ARGENTINE.

IN the *Wien. klin. Wochenschr.* for March 11th Dr. J. Brinkmann, director of the German Hospital at Buenos Aires, seeks to stem the tide of German and Austrian emigration to South America in search of medical practice. There are, he says, at most 60,000 German-speaking people in Buenos Aires and its environs, many of whom prefer to call in Argentine doctors, whose seven-year training is, in many respects, he holds, better than that obtained in Germany and Austria. In the larger towns there are already a sufficiency of German doctors, and in country districts to gain a living is hard and precarious. The conditions in other South American republics are, he concludes, even less favourable. For many years past no foreigner has been able to obtain a practice in Bolivia, Paraguay, Chili, or Uruguay.

AEROPLANE TRAVEL.

LONDON to Brussels in 2½ hours; London to Paris in 3 hours. This announcement should make the eyes open wide of old travellers. The price is 15 guineas per passenger. Other regular routes are from Liverpool to London, and Southampton and Plymouth to London. The Central Aircraft Company, Ltd., of 179, High-road, Kilburn, N.W., invite intending passengers to telephone their requirements to Kilburn or to their aerodrome at Northolt, Middlesex, which is within a few minutes' walk of Northolt Junction, reached from Paddington or Marylebone Stations, or from Ruislip Station, reached from Baker Street Station. The cheapest flight is over Harrow for £1 2*s.* 6*d.*, and over the West-End and City for £2 3*s.* 6*d.* There is also a circuit of London for £6 10*s.* and a tour round London for £17 10*s.*, and a flight up the Thames Valley for £12 10*s.* Flights around Kent cost £25; around South Wales, £40; over several cathedral cities, £30; and £10 per hour is charged to follow racing in the Solent. More ambitious are the tour of the American front in four days for £120 and of the Belgian battlefields in three days for £60.

MALARIA IN CILICIA.

THE recent Armenian massacres in Cilicia, and especially at Marasch, are of special medical interest, as they have occurred in a region in which there is a peculiarly virulent malaria, which attacked the German troops in 1916 most severely. The story, recounted in the *Archiv für Schiffs- und Tropen-Hygiene* for December by Dr. Viktor Schilling, reminds us of the experiences of our own troops in Salonica. Cilicia is a mountainous province, with the two great mountain ranges, the Taurus to the north-west, the Amanus to the south-east, each with a direction through the country from the north-east to the south-west. Between them lies a high plateau, dry and scorchingly hot in summer, and becoming a marsh in winter. In summer the rivers disappear into small bush-covered streams, often merely a string of sheltered pools giving anopheles mosquitoes the best breeding-grounds possible. The high-lying valleys are no health resorts, but, being hot and swampy, are themselves full of mosquitoes infected by the malaria-ridden inhabitants, and are more dangerous to travellers than even the plains below. Dr. Schilling is of opinion that every one of the inhabitants has had malaria. German troops suffered severely after a 10 to 14 days' incubation, with severe pyrexia, vomiting, and diarrhœa, diagnosed sometimes as cholera, typhus, typhoid, or dysentery. Cases died of coma in four days; other cases were overcome and had no pyrexia. Intravenous quinine alone did good. Cases of blackwater fever were heard of. The disease was so deadly and so resistant to treatment that it was supposed the quinine was in fault, but the suspicion was undeserved. Mosquito nets and antimalarial measures other than quinine administration (15 gr. twice a week) could not be undertaken. Dr. Schilling thinks prophylactic quinine did diminish the attacks, lessened the mortality, delayed relapses, and enabled those who passed quickly through the danger area to recover more quickly from their attacks, but it was less successful than usual, because the infections were so numerous. The malaria was of very virulent type and unusually resistant to quinine; this applies to both benign and malignant tertian. Dr. Schilling found six rings in one red blood corpuscle. Cases which had no quinine prophylaxis were just as obstinate as the others. Near Aleppo of 46,000 blood examinations 11,000 showed malarial parasites, and mixed infections were particularly common. Culex and stegomyia were common in Aleppo, but anopheles were not found.

SWISS MEDICAL STUDENTS.

DURING the winter session 1919–20 a total of 1817 students (1581 men and 236 women) attended courses in the medical faculties of the five Swiss universities. Of this total 532 (424 men and 108 women) were foreigners. The attendance was distributed between the universities thus: Basle, 265; Berne, 388; Geneva, 408 (including 66 dental students); Lausanne, 270; Zurich, 486 (excluding 117 dental students).

THE late Ernst Haeckel's house in Jena is being rebuilt as a memorial institute for embryological research.

Communications, Letters, &c., to the Editor have been received from—

A.—Dr. Ayres, Liverpool; A. F. T.
B.—Dr. J. Blomfield, Lond.; Dr. R. B. Blair, Hull; Bombay Medical Council, Registrar of; Dr. L. S. Burrell, Lond.; Dr. A. Balfour, Lond.; Prof. W. B. Bell, Lond.; Prof. A. E. Boycott, Radlett; Mr. J. I. Brownlee, Anderson, South Carolina.
C.—Dr. H. L. Cronk, Liskeard; Dr. H. P. Cholmeley, Forest Row; Dr. F. G. Collins, Lond.; Chicago School of Sanitary Instruction; Canadian Medical Association, Vancouver; Mr. F. H. Carr, Lond.; Dr. E. P. Cumberbatch, Lond.
D.—Dr. D. Donegal, Manchester; Dr. T. B. Davies, Eastbourne; Dr. H. Drinkwater, Wrexham; Dr. V. Dickinson, Lond.; Dr. W. H. Dickinson, Newcastle-upon-Tyne; Dr. H. H. Dale, Lond.; Decimal Association, Lond.
E.—Dr. J. Eyre, Lond.; Dr. T. R. Elliott, Lond.
F.—Dr. A. W. Fuller, Lond.; Mr. T. T. Frankenberg, Columbus, Ohio; Federation of Medical and Allied Societies, Lond., General Sec. of; Dr. J. G. Forbes, Lond.
G.—Mr. E. W. H. Groves, Bristol; Dr. R. P. Garrow, Lond.; Dr. S. R. Gloyne, Lond.; Miss E. M. Geraghty, New Haven; Great Northern Central Hospital, Lond.
H.—Dr. A. J. Hall, Sheffield; Mr. N. Hobhouse, Lond.; Mr. W. Hampson, Lond.; Mr. A. K. Hurry, Dublin; Dr. C. Higgens, Lond.; Dr. Houdart, Bel-Air; Mr. F. Hooper, Lond.; Dr. J. A. Hadfield, Lond.; Mr. F. A. Hocking, Lond.; Major W. E. Home, R.A.M.C.; Harveian Society, Lond., Hon. Sec. of.
I.—Insurance Committee for the County of London.
J.—Dr. J. H. Jones, Standford Dingley; Johns Hopkins Press, Baltimore.
K.—King Edward's Hospital Fund for London, Hon. Secs. of.
L.—Dr. J. N. Leitch, Sutton; Dr. C. Lillingston, Gorleston; Dr. J. C. G. Ledingham, Lond.; Leicester Medical Society, Hon. Sec. of; London School of Economics, Librarian of.
M.—Ministry of Health, Lond.; Dr. E. D. Macnamara, Lond.; Dr. J. E. R. McDonagh, Lond.; Minnesota State Pharmaceutical Association, Minneapolis; Dr. H. W. L. Molesworth, Lond.
N.—Sir Arthur Newsholme, Baltimore; National Anæsthesia Research Society, Avon Lake; New York Academy of Medicine.
Q.—Queen Charlotte's Lying-in Hospital, Lond., Sec. of.
R.—Royal Society, Lond.; Royal Mail Steam Packet Co., Lond.; Dr. J. D. Rolleston, Lond.; Dr. R. G. Rous, Lond.; Dr. E. Roberts, Cardiff; Royal Medical Benevolent Fund, Lond., Sec. of; Dr. J. H. Ray, Manchester.
S.—Dr. A. G. Shera, Eastbourne; Dr. F. A. Southam, Manchester; School of Physic in Ireland, Dublin, Registrar of; Messrs. Sells, Ltd., Lond.; Scottish Board of Health, Edinburgh; Prof. W. Stirling, Manchester; Dr. M. C. Stopes, Leatherhead; Messrs. Schenker and Co., Lond.; Mr. R. E. Smith, Barry; Dr. H. A. Smith, Lond.
T.—Dr. J. Taylor, Lond.; Dr. F. E. Tylecote, Manchester; Sir W. Thorburn, Manchester; Dr. A. H. Thompson, Lond.
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Y.—Yorkshire Summer School of Geography, Whitby.

Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, W.C. 2.

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Milroy Lectures

ON

THE HIGHER FUNGI IN RELATION TO HUMAN PATHOLOGY

Delivered before the Royal College of Physicians of London

By ALDO CASTELLANI, C M G , M D ,
M R C P. LOND ,
PHYSICIAN TO THE TROPICAL HOSPITAL (MINISTRY OF PENSIONS)
LECTURER AT THE LONDON SCHOOL OF TROPICAL MEDICINE

LECTURE I.

Delivered on Feb 26th 1920

MR PRESIDENT, CENSORS AND FELLOWS OF THE COLLEGE,—I beg, first of all, to express to you my deep appreciation of the honour I have received in being asked to deliver the Milroy lectures for this year It is an honour I shall always very greatly value

As subject of my three lectures I have taken the Higher Fungi in Relation to Human Pathology The study of bacteria or lower fungi is so engrossing and has given results of such magnitude that there has been perhaps a tendency hitherto to overlook the importance, from a medical point of view, of vegetal organisms higher than bacteria There is little doubt, however, in my humble opinion, that further investigation will tend to increase the importance of these organisms in the same manner that the great medical importance of animal parasites higher than protozoa has already been recognised

In the first lecture I propose touching briefly on the subject of fungi in general, on their morphological characters and classification, and on their biological properties In the second and third lectures I propose studying them in relation to human disease, discussing briefly and giving a description of some of the less known affections of mycological origin in the investigation of which I happen to have taken a part

HISTORICAL

Mycology, the branch of botany which deals with the higher fungi may be said to have begun in the days of Charles II , when Hook constructed a magnifying lens and with it examined the yellow spots so often found on the leaves of the Damascus rose He saw that these spots were caused by certain filamentous fungi, of which he gave a detailed description, and left remarkably good drawings He believed, like many other observers after him, that fungi arose from spontaneous generation, especially in decaying matter

About the end of the same century (1686) Malpighi in his writings several times referred to parasitic fungi, especially to fungi of the type Mucedo In 1753 Linnæus, in his famous book "De Species Plantarum,' collected all that was known at the time on the subject, and named a large number of species After Linnæus many botanists carried out investigations on fungi it suffices to mention the names of Persoon, Link, Kutzing It is interesting to note, however that fungi parasitic of man did not, apparently, attract attention until the beginning of the last century The first fungus of importance found in man was the thrush fungus, by Langenbeck, in 1839 This author discovered the fungus while examining microscopically the white patches of thrush he found at the autopsy of a case of typhoid in the oral mucosa, the pharynx, and the whole of the intestine He believed at first that the fungus was the cause, not only of the white patches, but of the typhoid infection from which the patient had died

Berg, in 1842, gave a good description of the organism, and in 1843 Charles Robin made a complete investigation of it and called it *Oidium Albicans*, Charles Robin Robin wrote also a book on mycology, which has remained classic "Histoire Naturelle des Vegetaux Parasites qui croissent sur l'Homme et sur les Animaux Vivants" (J B Bailliere, Paris, 1853) It took a long time, however, for the idea that thrush was a mycological affection to be generally accepted Even many years after Charles Robin s classic work, numbers of physicians did not believe in it In the most popular text book of pathology of the "fifties" and "sixties" of last century, one reads that the thrush patches are the result of a morbid secretion of the oral mucosa, and the author adds, "a mycologist, however, has brought forward the peculiar idea that such patches are composed of a mass of vegetable organisms '

In the same year in which the thrush fungus was found (1839), Schoenlein discovered the fungus causing favus this organism a little later was further investigated by Lebert, who called it *Oidium Schoenleini*, and subsequently by Remack, who named it *Achorion Schoenleini*

In 1844 Gruby described the fungi found in ringworm, *and made a distinction between ringworm due to* a large spore fungus and ringworm due to a small spore fungus, a distinction which was ridiculed at the time and completely forgotten later, until many years after Sabouraud made the same distinction, and very *honourably called attention to Gruby s forgotten work*

In 1846 Eichstedt discovered the fungus of pityriasis versicolor Interest in the study of the higher microfungi continued to be great until the "seventies and "eighties of last century, when the epoch making discoveries of Pasteur and Koch brought bacteriology to the front, and mycology was relegated to the background *Interest in mycology slightly revived in the* last years of the century, this being principally due to the work of Sabouraud, and during the last 20 years, slowly but surely, this branch of knowledge has grown in importance

GENERAL REMARKS AND CLASSIFICATION

As well known, the *Regnum Vegetable*, or *Vegetal Kingdom*, is usually divided into four large groups, or *phyla* the Thallophyta, the Bryophyta, the Pteridophyta, and the Phanerogamæ, or Flowering Plants The Thallophyta may be defined as being vegetal organisms with a cellular structure, which is usually little differentiated, and reproducing *either asexually by division and by spore formation*, or sexually, *after conjugation*, by oospores These organisms may be separated into two classes —

1 Those with Chromatophores and chlorophyll—*Algæ*, Roth, 1797

2 Without Chromatophores or chlorophyll—*Fungaceæ*, Linnæus, 1737.

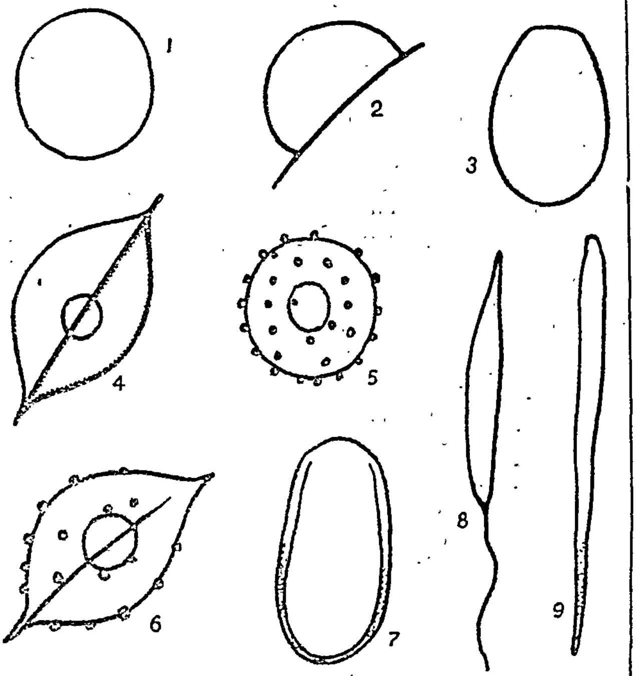
The Algæ are generally subdivided into the *Cyanophyceæ* (Blue Green Algæ) the *Chlorophyceæ* (Green Algæ), and the *Schizomycetaceæ* (bacteria *sensu lato*, or lower fungi) It must be noted, however, that the *Schizomycetaceæ*, or unicellular fungi, or lower fungi, or bacteria, are without chlorophyll and generally without chromatophores, and *it is therefore doubtful* whether it is correct to classify them with the Algæ, as is usually done They are believed, however, to have derived from the Cyanophyceæ, or Blue Green Algæ They may be defined as Thallophyta without chlorophyll starch or chromatophores, and with a vegetative body, which is usually composed of a mass of filaments, or "mycelium *The mycelial filaments or threads* are also known as *hyphæ*, and may be of very different shape, length, and breadth, they may be straight, variously bent, septate or non septate These organisms being unprovided with chlorophyll cannot make use for their nutrition *of the carbon dioxide of the air they derive their carbonaceous food material* from complex organic matter, often decaying matter Fungi may be *saprophytic* or *parasitic*, the same fungus may at times be a saprophyte at other times a true parasite

Reproduction.

The seeds of the higher plants may be said to be represented in the fungi by the roundish or oval bodies known by the generic term spores, of which there are a number of types, some sexual, some asexual (see Figs. 1, 2, 3). The principal ones are the following:—

1. *Gonidia* (endospores, spores *sensu stricto*).—These take origin inside a special receptacle called *sporangium*, which is frequently terminal and aerial. When the spores are 2, 4, 8, or a multiple of 8, they are generally called ascospores, and the cell or spore-case structure containing them is known as an *ascus*.

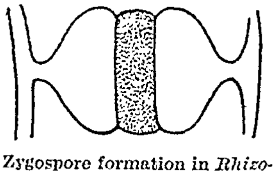
FIG. 1.



Types of ascospores. 1, Saccharomyces; 2-4, Willia; 5, Debaryomyces; 6, Schiönniomyces; 7, Saccharomycopsis; 8, Monospora; 9, Nematospore (after Guilliermond).

2. *Zygospores.*—These spores result from a conjugation or modified sexual act between the two special club-shaped hyphal processes (gametes), which are similar in shape and do not show any apparent sexual differentiations; the gametes come into contact and unite, forming a large cell with a very resistant double wall, called *zygospore*.

FIG. 2.

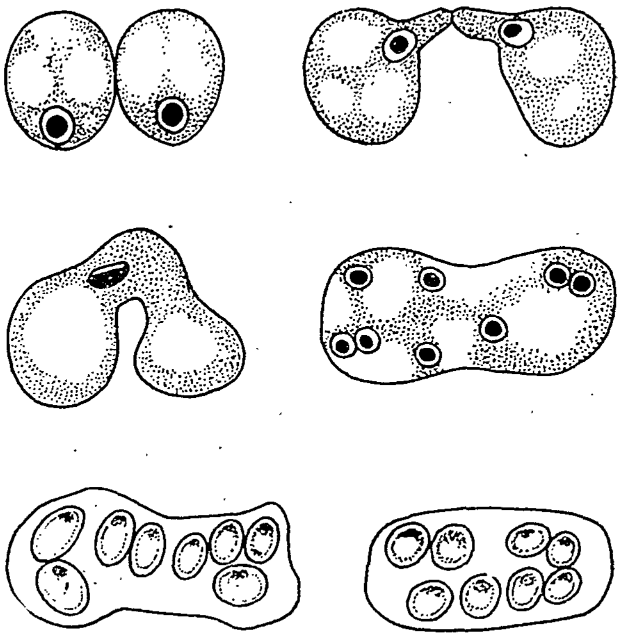


Zygospore formation in *Rhizopus nigricans*.

3. *Oöspores.*—These result from a complete sexual conjugation between sexually differentiated elements—a female element (oösporangium, oögonium) and a male element. The female element, *oösporangium* or *oögonium*, has a thick capsule with several pores, and contains some roundish protoplasmatic masses, female gametes, macrogametes, or oöspheres. The *male element* (male gamete, antheridium), which originates on a special delicate hypha, comes into contact with the oösporangium sending a protoplasmatic process through it. In some cases the antheridium divides into several motile bodies—spermatozoids, antherozoids—which fertilize the female gametes.

4. *Conidia* (Exospores).—These are asexual spores. They are roundish or oval, occasionally spirally shaped bodies, which take origin from the mycelial threads by a process of budding or septation or abstriction, and may be simple or divided by septa. They are at first unicellular (Fig. 4), but later a process of division may set in, and they may become pluricellular. Conidia may be pedunculated or non-pedunculated, lateral or terminal. Two principal types of conidium may be distinguished, the true conidium and the *aleuriospore*. True conidia are easily detached from the mycelial hyphæ bearing them, and when they have become free they originate new spores by a process of budding, or give rise to mycelial filaments by germination. True conidia are incapable of forming new spores or new mycelial threads while they remain attached to the parent mycelium. The mycelial hypha which carries the conidia is termed *conidiophore*, or *Sporophore*; a *phialide* is a flask-shaped segment interposed between the sporophore and the conidia; a *prophialide* is a special article on the Sporophore supporting several phialides. The false conidia, or *aleuriospores*, which may be lateral, terminal, or intercalary, are not originally distinct from the thallus, and are not easily detached; they are only set free by the death of the mycelial hypha to which they are attached.

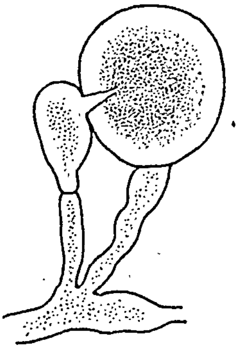
FIG. 3.



Zygosis and ascus formation in *Zygosaccharomyces octosporus* (after Guilliermond).

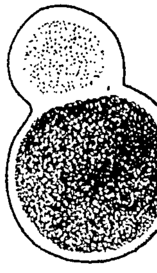
5. *Thallospores.*—A thallospore is merely a portion of the thallus, or vegetative body, which becomes secondarily adapted to the purposes of reproduction. There are several varieties of thallospores, the principal ones being: the *Blastospore* (Fig. 5), oval or roundish, formed by a process of budding. The *Arthrospore*, formed simply by the segmentation and disarticulation of a hyphal element or mycelial thread; it is at first square, and later becomes roundish or oval. The *Chlamydospore*. This is merely an arthrospore of large size undergoing encystment.

FIG. 4.



Oöspore formation.

FIG. 5.



A blastospore (after Vuillemin).

6. *Hemispores.*—The mycelial hypha becomes differentiated, forming an ampulliform structure called "protoconidium," which later divides into several

segments or " deuteroconidia," which are the true reproduction spores

Classification

Fungi may be separated into two large divisions the *Myxomycetes* characterised by the vegetative body being under the form of a multinucleate naked plasmodium and the *Eumycetes* characterised by the vegetative body being generally filamentous Fungi parasitic of man are found only in the second division (Eumycetes), which may be subdivided as follows —

Eumycetes
- Class I —*Fungi Imperfecti* Mycelium septate No ascospores
- Class II —*Ascomycetes* Mycelium septate when present Ascospores
- Class III —*Basidiomycetes* Mycelium septate Basidiospores
- Class IV —*Phycomycetes* —Mycelium non septate in vegetative stage

A *Fungi Imperfecti*

The Class *Fungi imperfecti*, Fuckel, 1869 is most important from a medical point of view It may be subdivided into (*a*) *Deuteromycetes*, Saccardo, 1886 (accessory fructifications present), and (*b*) *Hyphales*, Vuillemin, 1910 (accessory fructifications absent) Only the latter group contains fungi parasitic on man It may be classified as follows —

Hyphales, Vuillemin (= *Hyphomycetes*, Fries)
- Order I —*Microsiphonales*, Vuillemin, 1910 (hyphæ bacilliform)
- Order II —*Thallosporales*, Vuillemin, 1910 (Reproduction by thallospores)
- Order III —*Hemisporales*, Vuillemin, 1910 (Reproduction by hemispores)
- Order IV —*Conidiosporales*, Vuillemin, 1910 (Reproduction by conidia)

The Order *Microsiphonales* contain two families the *Mycobacteriaceæ*, Miche, 1909, in which no definite mycelium is observed, and the *Nocardiaceæ*, Castellani and Chalmers, 1918, in which a definite mycelium is present

The *Mycobacteriaceæ* are generally classified with the bacteria and not with the higher fungi, and contain five principal genera Genus *Mycobacterium*, Lehmann and Neumann, *Leptothrix*, Kutzing *Cladothrix*, Cohn, *Vibriothrix* Cast

The *Nocardiaceæ* contain two genera *Nocardia*, Toni and Trevisan, which grows aerobically, is easily culti vated and produces arthrospores, *Cohnistreptothrix*, Pinoy, which is difficult of cultivation, mostly anaerobic and does not produce arthrospores

The Order *Thallosporales*, Vuillemin, 1910, are divided into two Sub orders the *Blastosporineæ*, in which reproduction takes place by means of blastospores, and the *Arthrosporineæ*, in which reproduction takes place by arthrospores

The Sub order *Blastosporineæ* contain five principal families 1 The *Cryptococcaceæ*, Kutzing The hyphæ are hardly different from the conidia, both being yeast like, conidia not arranged in chains 2 The *Oosporacea*, Saccardo Some long hyphæ present, spores typically in chains 3 The *Enantiothamnaceæ*, Chalmers and Archibald—conidia arranged verticillately around the septa of the mycelial hyphæ 4 The *Haplographiaceæ*—when living parasitic conidia are collected in grape like masses The *Cladosporiaceæ*, Saccardo—conidia solitary or in chains

The Sub order *Arthrosporineæ* contains a very important family, the *Trichophytonaceæ*, Vuillemin in which reproduction takes place by Arthrospores, long hyphæ are present in cultures These fungi are often parasitic of hair This family includes a large number of genera, including Trichophyton, Microsporon, and Achorion It is to be noted, however, that many authorities consider these fungi to belong to the Ascomycetes (family Gymnoascaceæ) and not to the *Fungi imperfecti*

The third Order of the *Hyphales*, the Hemisporales, are characterised by reproduction taking place by hemi spores, here the mycelium is composed of abundant hyphæ, which are thin, but always more than 1 micron in diameter The conidiophores are branched each branch terminating in ampulliform structure preceded by an annular construction produced by a rigid thickening of the wall This ampulliform structure is called proto conidium The protoconidium after a time divides into a number of sporiform segments (deuteroconidia)

The fourth Order *Conidiosporale*, which, as already stated, reproduced by means of conidia, contains four principal Sub orders 1 The *Aleurosporineæ*, Vuillemin 1914 Reproduction takes place by aleurospores 2 The *Sporotrichineæ*, Vuillemin, 1910, reproduction by true conidia, but true conidiophores are absent 3 The *Sporophoralineæ*, Vuillemin, 1910, reproduction takes place by true conidia borne on true conidiophores 4 The *Phialidineæ*, Vuillemin, 1910, reproduction by true conidia borne on phialides

B CLASS II —*Ascomycetes*

The fungi belonging to this class, as already mentioned are characterised by reproduction taking place by means of ascospores (gonidia endospores), which originate inside special cells called asci The Asco mycetes contain three very important families —

(*a*) The *Saccharomycetaceæ*, Rees, 1870, mycelium only slightly developed or absent Asci isolated, not differentiated from vegetative cells

(*b*) The *Endomycetaceæ*, mycelium well developed

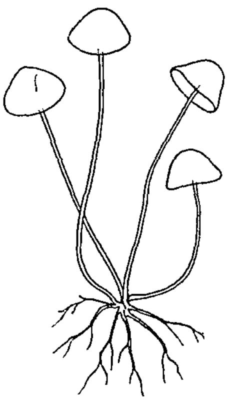
(*c*) The *Aspergillaceæ* asci generally contained in a globose hollow structure (perithecium), with a terminal opening or pore Compact peridium

All these families contain important fungi parasitic of man

C CLASS III —*Phycomycetes*

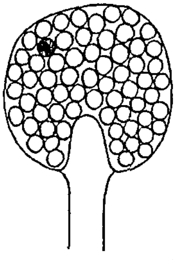
The Phycomycetes, which are characterised by the mycelium being continuous — non septate — in the vegetative stage, contain several families one of which the *Mucoraceæ*, has organisms parasitic of man The fungi belonging to this family have a branching mycelium with *aerial* branches (gonidiophores), each of which supports on its distal extremity a globular, pear shaped, or claviform sporangium, called *gonidangium* which is at first separated *from the gonidiophore by a* septum This septum later protrudes into the lower portion of the sporangium and forms a variously shaped structure known as columella By free cell formation gonidia develop inside the sporangium The sporangial protoplasm not used in the formation of the gonidia is transformed into a peculiar mucilaginous substance which later dries up and is the cause of the sporangium bursting Each gonidium which has become free gives rise by germination to a mycelial filament There is also at times a sexual mode of reproduction consisting in the conjugation of undifferentiated non motile gametes, with formation of zygospores When growing in unfavourable media numerous species repro duce only by conidia and chlamydospores

FIG 6



Rhizopus niger Ciaglinski and Hewelke

FIG 7



Type of sporangium found in Genus *Rhizopus*

The family *Mucoraceæ* contains a number of genera, among which the *following have species parasitic of* man (see Figs 6 and 7) 1 *Mucor*, Micheli, mycelium ramified rhizoids (slender root like filaments) absent

2. *Rhizomucor*, Lucet and Constantin; rhizoids present, columella ovoid. 3. *Rhizopus*, Ehrenberg; rhizoids present, columella mushroom-like. 4. *Lichtheimia*, Vuillemin; peduncle supporting sporangium ends in a special formation encircling the base of the columella. Diseases due to the fungi of the family *Mucoraceæ* are often called "mucormycoses."

Certain Biological and Biochemical Characters of Fungi.

The *biological* and *biochemical* characters of fungi are very interesting, and of great practical importance. Recent investigations have shown numerous analogies with the lower fungi (bacteria), as regards production of toxins, and especially as regards serological reactions developing in inoculated animals.

About 20 years ago, the late Dr. A. Macfadyen, Director of the Lister Institute, inoculated rabbits with cultures of a saccharomyces and observed a production of specific agglutinins in the blood for the particular species he had inoculated. These results were confirmed and enlarged, using other fungi, by G. H. Rogers, Concetti, Quarelli, &c., and Widal and Abrami have described a general diagnostic method, "sporo-agglutination method," based on the observation that patients suffering from mycological diseases contain specific agglutinins for the spores of the causative fungi. In my experience, however, in many cases, in addition to specific agglutinins, there is present also a large amount of non-specific ones, and this generally detracts from the usefulness of the method.

As regards *toxins*, Auchair and Verliac have obtained a toxic product soluble in ether from *Nocardia bovis*, which they called "actinimycetine." Ceni, Besta, and other observers have extracted various toxins from fungi of the genus Aspergillus, and believe them to be the cause of pellagra. Charrier, Roger, and others have extracted toxins from fungi of the genus Monilia.

Vaccines have been prepared using cultures of Monilias killed by heat, or by carbolic acid by Ashford, Taylor, and others. Plato has prepared a trichophyton vaccine by killing cultures of various trichophytons by heat and triturating them. When injecting this vaccine in patients affected with ringworm, he has observed a general reaction similar to that induced by tuberculin in tuberculous patients. A cuti-reaction in patients suffering from sporotrichosis has been described by De Beurmann.

Biochemical Changes Induced by Fungi.

Certain fungi may induce profound chemical changes, and are of great importance in agriculture and industry. Everyone knows the rôle played by organisms of the family *Saccharomycetaceæ* in alcoholic fermentation and in the production of wine and beer. Certain fungi ferment a large number of sugars and other carbohydrates, others a few or none. I have happened to find a group of monilias which very rapidly split a substance generally considered to be non-fermentable—viz., inulin.

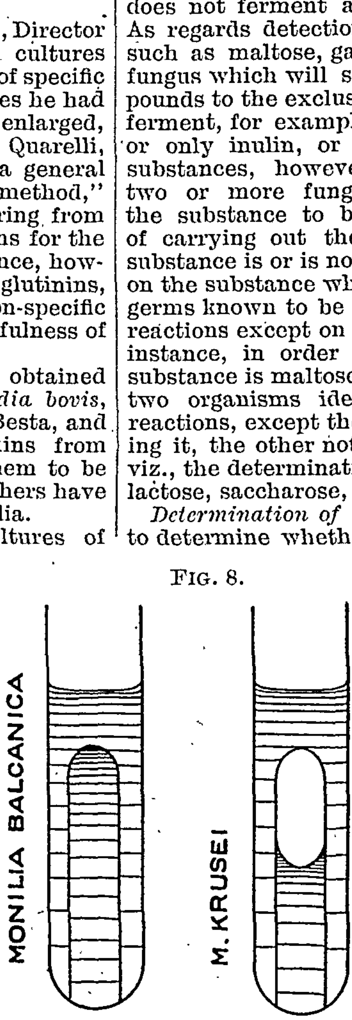
Mycological Method to Detect Various Carbohydrates.

As well known, the property certain fungi have of fermenting glucose has been used for many years as a method of routine to detect this sugar in the urine. In this connexion I may perhaps be allowed to describe briefly a mycological method for the detection of other sugars and carbohydrates which I theoretically devised some years ago, but only recently worked out experimentally, jointly with Dr. F. E. Taylor, in Professor Hewlett's institute. It may, perhaps, be of some slight interest to give here some details of this method and make it better known.

As already stated, for many years so-called German yeast (baker's yeast, brewer's yeast) has been used for the detection of glucose, but this is the only substance for which so far such method of detection has been employed in pathological investigations, and, as a matter of fact, this method of finding glucose (although considered specific in some text-books on pathology) is inexact, because Taylor and myself have shown that German yeast ferments as a rule, not only glucose, but also lævulose, galactose, maltose, saccharose, and sometimes even lactose. If a specimen of urine undergoes fermentation after the addition of German yeast it does not mean, therefore, that this urine contains glucose; it might contain lævulose or galactose, or maltose or saccharose, or even lactose, &c. To detect and determine with certainty glucose it is necessary to use an organism which will split only this sugar and no other. We have such an organism in *M. balcanica*, Cast., which does not ferment any substance apart from glucose. As regards detection and identification of other sugars such as maltose, galactose, &c., I do not know of any fungus which will select only one of the carbon compounds to the exclusion of all others, a fungus which will ferment, for example, only maltose, or only galactose, or only inulin, or only lactose, &c. These various substances, however, may be identified by using two or more fungi, and comparing their action on the substance to be determined. The simplest way of carrying out the method to determine whether a substance is or is not a certain carbohydrate, is to test on the substance whenever possible the action of two germs known to be identical in all their fermentative reactions except on that particular carbohydrate. For instance, in order to see whether a given chemical substance is maltose, the substance may be tested with two organisms identical in all their biochemical reactions, except their action on maltose, one fermenting it, the other not. I shall make a few examples—viz., the determination of lævulose, maltose, galactose, lactose, saccharose, inulin.

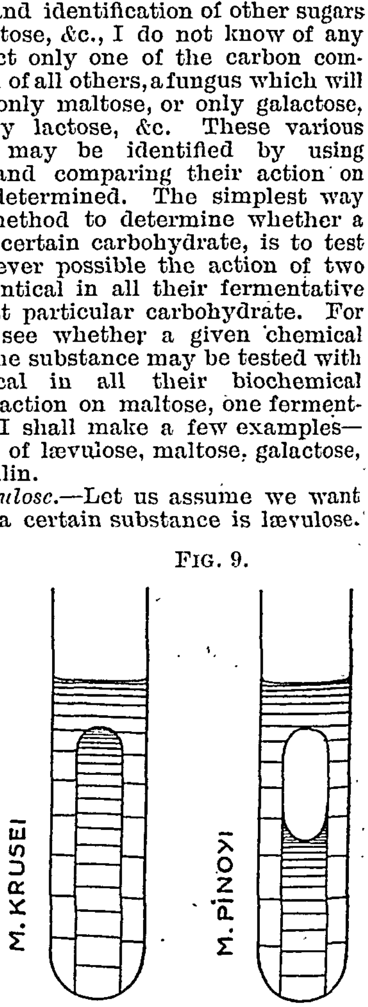
Determination of lævulose.—Let us assume we want to determine whether a certain substance is lævulose.

FIG. 8.



Identification of lævulose.

FIG. 9.



Identification of maltose.

A 1 per cent. sterile solution of the substance is made in sugar-free peptone water, and distributed into two tubes (Nos. 1 and 2), each containing a fermentation tube. No. 1 is inoculated with *Monilia krusei*, Cast., and No. 2 with *Monilia balcanica*, Cast. (see Fig. 8). The tubes are incubated at 35° C. for 48 hours, and the results are then read. If No. 1 tube (*Monilia krusei*, Cast.) contains gas, and No. 2 tube (*Monilia balcanica*, Cast.) contains no gas, the substance is lævulose. This is easily understood by keeping in mind the following facts: *Monilia krusei* ferments only glucose and lævulose; *Monilia balcanica* ferments only glucose. The substance we are testing having been fermented by *Monilia krusei* must therefore be either glucose or lævulose, but as it is not fermented by *Monilia balcanica* it cannot be glucose, which is always attacked by that fungus: it can, therefore, only be lævulose.

Determination of maltose —A 1 per cent sterile solution is made in sugar free peptone water of the substance which we wish to ascertain whether it is maltose The solution is distributed into two sterile tubes, which are labelled Nos 1 and 2 (see Fig 9) No 1 tube is inoculated with *Monilia pinoyi*, Cast, and No 2 with *Monilia krusei*, Cast If after 48 hours' incubation at 35° C No 1 (*Monilia pinoyi*) contains gas, and No 2 (*Monilia krusei*) does not, the substance is maltose This is explained by the fact that *Monilia pinoyi*, Cast, ferments only three carbon compounds I know of—glucose, lævulose, maltose, *Monilia krusei* ferments only two—glucose and lævulose The substance being fermented by *M pinoyi* might be either glucose or lævulose or maltose, but it is not fermented by *M krusei* it cannot therefore be glucose or lævulose, and there remains only one possibility, it must be maltose

Identification of galactose —Same technique, but No 1 tube is inoculated with *Monilia metalondinensis*, Cast, and No 2 tube with *Monilia pinoyi*, Cast If after 48 hours' incubation at 35° C No 1 tube (*M metalondinensis*) contains gas and No 2 tube (*M pinoyi*) does not, the substance must be galactose The explanation lies in the fact that *M metalondinensis* ferments the following four carbon compounds only (glucose, lævulose, maltose, galactose), while *Monilia pinoyi* ferments only glucose, lævulose, and maltose The substance being fermented by *Monilia metalondinensis*, there are four possibilities it may be glucose or lævulose, or maltose, or galactose, but is not fermented by *M pinoyi* (which attacks glucose lævulose, and maltose), it cannot, therefore, be glucose, nor lævulose, nor maltose, it can only be galactose

Determination of lactose —Same technique as for the determination of the carbohydrates already mentioned but instead of using micro organisms belonging to the higher fungi, bacteria may be used The substance to be identified is made into a 1 per cent sterile solution of peptone water and distributed into two tubes Nos 1 and 2 Tube No 1 is inoculated with *B pseudoasiaticus*, Cast, and tube No 2 with *B pseudocoli* If after 48 hours' incubation at 37° C tube No 1 (*B pseudoasiaticus*) does not contain gas, while tube No 2 (*B pseudocoli*) contains gas, the substance must be lactose, because *B pseudoasiaticus* and *B pseudocoli* are absolutely identical in all their fermentative characters except as regards lactose, which is not attacked by *B pseudoasiaticus*, and is, on the other hand, fermented with production of gas by *B pseudocoli*

In practice, if it is known beforehand that the substance to be determined is Fehling reducing, two bacilli found in every laboratory may be used—viz, *B paratyphosus B* and *B coli* If a Fehling reducing substance is not fermented by *B paratyphosus B*, and is fermented by *B coli*, it is lactose Why? Because the two germs as regards fermentation of Fehling reducing substances, differ only in their action on lactose *B paratyphosus*, as well known does not ferment it, while *B coli* ferments it [1]

Determination of saccharose —A 1 per cent solution of the substance suspected to be saccharose is made in sugar free peptone water, and some of the solution is placed into tubes Nos 1 and 2 Tube No. 1 is inoculated with *Monilia tropicalis*, Cast, and tube No 2 with *Monilia metalondinensis*, Cast If gas develops in tube 1 (*Monilia tropicalis*) and not in tube No 2 (*Monilia metalondinensis*) the substance is saccharose This is easily understood if the following facts are kept in mind *Monilia tropicalis* ferments only the following carbon compounds glucose, lævulose, maltose, galactose, saccharose *M metalondinensis* only the following four carbon compounds glucose, lævulose, maltose, galactose If a substance is fermented by *M tropicalis*, there are therefore five possibilities it may be glucose or lævulose, or maltose, or galactose, or saccharose but if the same substance is not fermented by *M metalondinensis*, it cannot be glucose, or lævulose, or maltose, or galactose, and must therefore be saccharose

To the above purely mycological method a chemico mycological formula, useful in practice, may be added.

$$\left.\begin{array}{ll}\text{Fehling} & - \\ \textit{Monilia tropicalis}\text{, Cast} & + \end{array}\right\} = \text{Saccharose}$$

This is explained by the fact that *M tropicalis*, Cast, ferments with production of gas, glucose, lævulose, maltose, saccharose, and no other substance If Fehling is negative it cannot be any of the first three substances, as they are all Fehling reducing, and it must therefore be saccharose

Determination of inulin —Same technique as for saccharose, but tube No 1 is inoculated with *Monilia macedoniensis*, and tube No 2 with *Monilia rhoi* If gas appears in tube No 2 (*M rhoi*) the substance is inulin This is easily understood if one bears in mind the fact that *M macedoniensis* and *M rhoi* are identical in all their fermentative reactions except in inulin, which is fermented by *M macedoniensis*, but not by *M tropicalis* If a substance, therefore is fermented with production of gas by *M macedoniensis* and not by *M rhoi* it must be inulin

Presence of More than One Fermentable Substance.

If more than one sugar or other fermentable carbon compound is suspected to be present, this may to a certain extent be ascertained and the various fermentable substances determined by the mycological method Let us assume that a liquid after gas fermentation with *Monilia balcanica*, Cast, is still fermentable with production of gas by *Monilia krusei*, Cast, the conclusion is that in addition to glucose the liquid contained lævulose of course, care should be taken to use strains of *Monilia balcanica* and *Monilia krusei* having approximately the same fermentation power on glucose If now the liquid after exhaustion first with *Monilia balcanica*, Cast, and then with *Monilia krusei*, Cast, is fermentable with production of gas by *Monilia pinoyi* Cast, the presumption is that, in addition to glucose and lævulose, maltose was present, and this is easily understood if we remember that *Monilia balcanica* produces gas in glucose only *Monilia krusei*, Cast, in glucose and lævulose, and *Monilia pinoyi*, Cast, in glucose, lævulose, and maltose

Use of the Mycological Method in Urine Analysis

With Dr F E Taylor I have carried out a number of experiments, adding to samples of urine various sugars and other carbohydrates and also examining a certain number of pathological urines The conclusion we have come to is that the method can be used in urine analysis with advantage, especially in the detection of glucose, lævulose, maltose galactose, lactose and pentoses A point of great importance is that the urine should be aseptic if it cannot be collected aseptically it should be sterilised as soon as possible after distribution in the tubes, in Koch's steamer for 30 minutes on two consecutive days It should never be autoclaved, as this procedure may alter the characters of the sugars present A portion of the urine is distributed in five sterile tubes, each containing a Durham's fermentation tube A third or equal amount of sugar free peptone water should be added to the urine, otherwise the fungi may grow very scantily and there may be no production of gas The five tubes plugged with sterile cotton wool, are inoculated one with *Monilia balcanica*, one with *Monilia krusei*, one with *Monilia pinoyi* one with *Monilia metalondinensis*, one with *B paratyphosus*, and one with *B coli*

Addendum

Unfortunately some months ago an accident, the catching fire of the 20° C incubator in which the collection of monilias was kept, destroyed a number of important strains including *Monilia balcanica*, Cast, which is specific for glucose At the present time only the following monilias with permanent fermentative reactions are available for urine analysis, *Monilia krusei*, Cast (ferments with production of gas, glucose and lævulose), *Monilia tropicalis*, Cast (ferments with production of gas, glucose, lævulose, maltose, galactose, and saccharose); *Monilia macedoniensis*, Cast. (ferments, with production of gas, glucose, lævulose, galactose, saccharose, and inulin). However, even with three species, in conjunction with *B. paratyphosus B* and *B. coli*, several carbohydrates can be detected and identified, as shown by the following formulæ:—

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[1] It is often stated in text books that if a urine reduces Fehling and is not fermented by ordinary Baker's yeast (German yeast) the reducing substance is lactose There are however two important sources of error first quite a number of specimens of German yeast ferment lactose second even if the German yeast should not ferment lactose this is not the only Fehling reducing substance which may not be fermented by baker's yeast—the pentoses for instance

Monilia krusei, Cast.	+	= Glucose or lævulose.
Monilia macedoniensis, Cast.	0	= Maltose.
Monilia tropicalis, Cast. ...	+	
Monilia macedoniensis, Cast.	+	= Inulin.
Monilia tropicalis, Cast. ...	0	
Monilia krusei, Cast.	0	= Galactose.
Monilia macedoniensis, Cast.	+	
Monilia tropicalis, Cast. ...	+	
B. paratyphosus B, Shott....	+	
Monilia macedoniensis, Cast.	+	= Saccharose.
Monilia tropicalis, Cast. ..	+	
B. paratyphosus B, Shott....	0	
Monilia tropicalis, Cast. ...	0	= Lactose (most probably, but it might be raffinose or glycerine; test with Fehling; if positive, lactose).
B. paratyphosus B, Shott ...	0	
B. pseudocoli, Cast....	+	
Monilia tropicalis, Cast. ...	0	= *Pentoses (if Fehling, positive).*
B. paratyphosus B, Shott	+	
B. coli	+	

+ = presence of gas. 0 = absence of gas; acid fermentation is not taken into account.

For urine analysis it is advisable to use as a matter of routine a set of five tubes, one inoculated with *M. krusei*, one with *M. macedoniensis*, one with *M. tropicalis*, one with *B. paratyphosus B*, and one with *B. pseudocoli*. The results may be arranged as follows:—

Monilia krusei, Cast.	+	= Glucose (or lævulose).
Monilia macedoniensis, Cast.	+	
M. tropicalis, Cast.	+	
B. paratyphosus B, Shott ...	+	
B. pseudocoli, Cast....	+	
Monilia krusei, Cast.	0	= Maltose.
M. macedoniensis, Cast. ...	0	
M. tropicalis, Cast....	+	
B. paratyphosus B, Shott ...	+	
B. pseudocoli, Cast....	+	
M. krusei. Cast.	0	= Galactose.
M. macedoniensis, Cast. ...	+	
M. tropicalis, Cast....	+	
B. paratyphosus B, Shott ...	+	
B. pseudocoli, Cast....	+	
M. krusei, Cast.	0	= Lactose (most probably, but it might be raffinose or glycerine; test with Fehling; if positive, lactose).
M. macedoniensis, Cast. ...	0	
M. tropicalis, Cast....	0	
B. paratyphosus B, Shott ...	0	
B. pseudocoli, Cast....	+	
M. krusei, Cast.	0	= Pentose (provided Fehling be positive).
M. macedoniensis, Cast. ...	0	
M. tropicalis, Cast....	0	
B. paratyphosus B, Shott ...	+	
B. pseudocoli, Cast....	+	
M. krusei, Cast.	0	= Saccharose.
M. macedoniensis, Cast. ...	+	
M. tropicalis, Cast....	+	
B. paratyphosus B, Shott ...	0	
B. pseudocoli, Cast....	+	
M. krusei, Cast.	0	= Inulin.
M. macedoniensis, Cast. ...	+	
M. tropicalis, Cast....	0	
B. paratyphosus B, Shott ...	0	
B. pseudocoli, Cast....	0	

+ = presence of gas. 0 = absence of gas; acid fermentation without production of gas is not taken into account.

I venture to think that this method, when more generally known, will, perhaps, be found useful in the detection of those sugars and carbohydrates the identification of which is long and laborious when made by purely chemical methods.

Having to-day referred to the morphological characters of fungi and their classification, as well as, though very incompletely, to their biological and biochemical properties, I propose, with your permission, to deal in the next lecture with fungi as specific causes of disease.

DR. A. T. SCOTT, M.B.E., Assistant Commander, Y Division Metropolitan Special Constabulary, has been made an Honorary Associate of the Order of St. John of Jerusalem for services to wounded, &c., during air raids.

A REVIEW OF "HEART" CASES IN THE EGYPTIAN EXPEDITIONARY FORCE, 1916-1918.

BY A. L. KROGH, M.D. EDIN., W. T. RITCHIE, M.D. EDIN., AND E. H. WHITE, M.D. OXON.

DURING a period of two years from November, 1916, 2425 soldiers suffering, or supposed to be suffering, from affections of the heart came under our care in Cairo. Some were men of category B, sent to hospital from garrison battalions or from area employment companies; but the vast majority belonged to category A, and had gone sick while with their units in the Sinai Desert, in the maritime plain of Palestine, in the Judæan Hills, or in the Jordan Valley. Many, and particularly those observed during the winter of 1916–1917, had previously seen service in Gallipoli. The nature of the campaign in Egypt and in Palestine offered abundant possibilities for the development of cardiac affections. The prolonged desert campaign, its weary monotony unbroken by leave even to the base, or unrelieved for weeks by letters from home, and the strain of marching and of fighting, ankle deep in sand, while exposed to the heat of the sun and the glare of the desert, and with a scanty water-supply, afforded a stiff test of endurance. Moreover, acute infective diseases were prevalent, especially malaria, enteritis, bacillary and amœbic dysentery, diphtheria, sand-fly fever, enteric, paratyphoid, and relapsing fever of the European and of the Palestine forms. Typhus, and jaundice apart from malaria, were not frequent; trench fever and dengue were practically not-existent.

Other Diseases.

Amidst the stress of work there was a tendency when disposing of men who, although unfit, had no organic disease of the heart, to base the diagnosis upon the obvious sign of an unduly rapid pulse, while they might in reality be suffering from malaria, chronic dysentery, anæmia, bronchitis, pulmonary tuberculosis, or other disease. Our general principle was to search for the basal disease and not to retain a diagnosis of D.A.H. unless that search—including, if necessary, an examination of the blood, of the fæces, and of the sputum, a screen examination of the chest, a diagnostic injection of tuberculin, and other methods—had failed to establish a diagnosis. "Other diseases" constituted 12·4 per cent. of the total 2425 cases. An analysis of 1132 cases admitted with a diagnosis of D.A.H. shows that 185 (16·3 per cent.) were suffering from "other diseases." Physical examination and the response to effort warranted a diagnosis of "No appreciable disability" in 36 (3·2 per cent.). In some of these men there may have been a disability which we failed to detect, or it may have passed away during the period between the evacuation of the men from their units and their arrival at hospital; but a considerable number had certainly no disability. A man reported sick with scabies, a sprained ankle, mild diarrhœa or other complaint, and subsequently a physiological irregularity of the pulse, or some slight deviation from the assumed standard of the cardiac sounds, was mistaken for a sign of heart disease. We have no hesitation in saying that faulty diagnosis was responsible for the transfer to hospital of many men who had no cardiac disability. Further, in many men admitted as V.D.H. or as D.A.H. the symptoms were trivial, and yet they had become profoundly impressed by the belief of the heart being seriously diseased.

In 149 (13·1 per cent.) of 1132 cases admitted as D.A.H. we diagnosed debility in 32, the condition being usually that of convalescence from dysentery, diphtheria, or other acute infective disease, bronchitis in 15, neurasthenia in 12, phthisis in 11, anæmia in 11, malaria in 8, sand-fly fever in 6, diphtheria, pulmonary emphysema, and myalgia (each) in 4, tubercle of the lung, pleurisy, and dysentery (each) in 3. "Other diseases" of lesser frequency were tonsillitis, dilatation of the stomach, diarrhœa, paratyphoid, adenoids, asthma, congestion of the lung, disseminated sclerosis, multiple (post diphtheritic) neuritis, hysteria, epilepsy, astigmatism, exophthalmic goitre, myxœdema, obesity, nephritis, gonorrhœa, secondary syphilis, P.U.O., kyphosis, rheumatic fever, inflammation of joints, varix, flat foot, and cancer.

The diagnosis of phthisis or of tubercle of the lung was sometimes easy. For example —

A lance corporal, aged 24, a motor driver in civil life, had been in hospital twice for bronchitis during his three and a half years of service before he was admitted as D.A.H. He complained of shortness of breath, cough, expectoration, and giddiness, the pulmonary physical signs were distinct and the sputum contained tubercle bacilli.

Another patient, aged 20, and formerly a tailor, had suffered from relapsing fever after being overseas for 15 months, and thereafter had never been wholly fit. Sixteen months later, complaining of weakness, palpitation, and shortness of breath, he was admitted as D A.H He was anæmic, the apex of the left lung was consolidated, and he lost 11 lb in weight while in hospital.

Other cases were less definite, having tachycardia and signs of a quiescent pulmonary lesion, but had not lost weight and did not react to 0 001 c cm. of tuberculin (T.O.); and in some instances the true diagnosis was not established until several months after D A.H. had first been diagnosed.

One man, aged 20, formerly a bank clerk, was under our care for seven weeks during the summer of 1917, and was discharged as fit for category A. Six months later he was readmitted as D.A.H , complaining of shortness of breath and giddiness. At rest his pulse rate was 78, after exertion 120, and five minutes later the rate was still 120 Ten months after his disability was first diagnosed as D A.H ; the right apex showed signs of consolidation

Examinations and Tests.

All the men, with few exceptions, were admitted to a general hospital, and many arrived as cot cases. We realised that a prime essential in treatment was the restoration of the man's confidence in his heart. A brief examination of his colour, of his breathing, and of his pulse as he lay on the stretcher having satisfied us that he had no serious heart failure, irrespective of what the cardiac lesion might be, he was asked to rise and walk to the ward. Thus the first step towards recovery was made. In our subsequent examination an inquiry, as full as possible, was made of the man's symptoms, of his habits in civil life, of antecedent diseases, and particularly of acute or chronic infections. The respiratory, the nervous, and other systems were examined before a detailed examination was made of the circulatory system, with the object of excluding diseases other than those of this system.

The men were examined in the recumbent and in the erect postures, before and after exercise. In determining the size of the heart we relied more on the situation of the apex beat than on the percussion dullness of the heart. Postural variations in the character of the cardiac sounds and murmurs were always noted. For example, the disappearance of a basal systolic murmur on change of posture reveals its functional origin Again, in mitral stenosis the characteristic murmurs may be obscure until the patient is erect and leaning forward, or they may not be heard clearly until he lies on his left side The value of exercise in intensifying cardiac murmurs is best illustrated in mitral stenosis, and in the mitral and tricuspid incompetence of cardiac dilatation Respiratory irregularity of the pulse was often observed, especially in men below 30 years of age. In those over 30 this irregularity was often associated with a recent infection or with a neurosis This irregularity was not an absolute criterion of the men's tolerance of effort, more especially in cases of neurosis or if the pulse rate at rest exceeded 90. In men with a history of recent infection a respiratory irregularity of the pulse was likewise no criterion of the immediate tolerance of effort, but it afforded a basis for confidence in anticipating complete recovery and return to duty. The pulse rate was taken in the recumbent and in the erect postures, and a note made of symptoms, such as blurred vision, giddiness, and præcordial uneasiness on rising from the couch.

Men who had developed D A.H in the early stages of convalescence from diphtheria, dysentery, or other acute infection were not submitted to any tests or course of training until their general health was substantially restored. After the first few weeks of convalescence, however, a course of mild physical exercises was of great benefit Except in those acute cases the men were never confined to bed, but were up and attending dining hall, and they were given as much liberty as possible. Having been examined they were tested as soon as possible after their admission to hospital.

The initial test of the heart's capacity for exertion varied according to the man's physical condition, but the usual standard test was that of walking 50 yards and doubling back. In the more obviously distressed men and in those with pronounced tachycardia milder initial tests were employed, such as swinging of the arms and skipping 20 times In the evaluation of the response to effort we particularly noted the pulse rate after exertion, its period of decline, which should not exceed 2 minutes, pallor, dyspnœa, distress, palpitation, pain, and development of cardiac murmurs and extrasystoles. According to the nature of the response the reaction was noted as good, fair, or poor If the pre exertion rate was over 90 the reaction was seldom wholly satisfactory at the outset In a considerable number the pulse-rate two minutes after the test exercise was less than the pre exertion rate, in the absence of dyspnœa and other symptoms this was a favourable sign, and indicated that improvement would accrue from a course of exercises

Graduated Training.

Within a day or two of admission to hospital the men began a course of graduated physical exercises. The first part of the course, consisting of exercises A to C 1, C 2, of 15 to 30 minutes' duration daily, as detailed in the Report (No. 8) to the Medical Research Committee (1917), was carried out in the hospital. Men who failed to attain the standard of efficiency required for category B III. were invalided home; others who proved fit for B III., but were not likely to be fit for a higher category (for example, men with mitral stenosis and good tolerance of exercise), were classified B III. for sedentary duties, and discharged to their base. The vast majority of the men, however, became fit for half an hour's exercise in groups C 1, C 2, and were then transferred from hospital to a depôt for further testing and training.

During 1917 these men were transferred to a convalescent depôt, where, in addition to half an hour's daily exercise in C 1, C 2, or in D group, they had a daily march of about half an hour over level ground and at an even pace. Later this was supplemented by route marches of two to six miles thrice weekly, over sandy ground, the men eventually carrying equipment. In 1918 the men were transferred from hospital to a command depôt, where the standard of efficiency demanded of the men approached as closely as possible that required for categories B II., B I., and A on active service. The heart cases were not separated in any respect from others in the depôt, but were exercised and trained along with other men with divers complaints. This was a fundamental principle in treatment, in order to prevent the men from thinking they were special cases, and in order to divert their attention from the heart. Four groups of physical fitness and of training were established in the command depôt. On transfer there most men were placed in the lowest group—namely, in group 4. Here they performed light fatigues, and each morning had two courses of special physical exercises, each of 20 minutes' duration. These exercises, performed under the direction of an expert instructor in physical training, Dr. G. G. Deaver, were characterised by their easy rhythmical motion, graduated both in tempo and in force, and by being carried out to the music of a band. The "heart" cases remained in this group for six days. They were then transferred to group 3, in which the men had, in addition to similar exercises of 30 minutes' duration daily and fatigues, a two-mile route march on alternate days. The duration of stay in this group was ten days, and then the men automatically moved into group 2, in which parades, drill, and Swedish drill were carried out, with longer route marches. After eight days in group 2 the men passed into group 1, in which they had full drills, ceremonial and otherwise, on alternate days; eight-mile route marches, with full equipment, pack and rifle, and bayonet fighting. The period of stay in this highest group was ten days. The average duration of training in the command depôt was consequently about 34 days. In was found inadvisable to allow cases to drag on indefinitely in the depôt. If little or no improvement was obtained in six weeks the man was regraded and discharged to duty in a lower category. It was better that he should be doing useful work in category B II. or B I. than remain in the command depôt in the hope of eventually attaining category A. No man was discharged from the depôts until he had been proved fit for the duty of his category.

The route marches afforded a sound test of the men's capacity for sustained effort, and were a necessary link in the chain of observation, for although a patient might tolerate even the strenuous exercises of D group, he might fail when the test was one of endurance, as demanded by a route march. In such men the phenomena of exhaustion were shown by limpness, fatigue, profuse sweating, laboured breathing, rapid pulse, loss of colour, and a feeling of being "done up." Other men made a poor start, but improved remarkably during the march, and returned in a comparatively fresh condition. Apparent anomalies in the men's response to effort were often observed, for this depended on the quality or nature of the effort demanded. Thus a man may tolerate well a sustained test such as a route march, yet react very poorly to a mild skipping test, to a short sprint, or to tests which involve jerking or sudden postural changes, and consequently sudden variations of arterial and venous pressure in the splanchnic area.

Organic Disease of the Heart.

Of the total 2425 cases 355 (14·6 per cent.) had organic disease of the heart. In all but a few, who had cardiac hypertrophy or chronic myocarditis, the disability was an organic valvular lesion. A loud pulmonary systolic murmur, as the chief abnormal sign, was often noted in men who were anæmic or in whom the heart was dilated, but only one instance of congenital heart disease came under observation.

The case was one of patent ductus arteriosus in a man aged 23, a tailor's cutter in civil life, who had three years and nine months' service, including two years in Gallipoli and in Egypt, before he reported sick with bronchitis. Of the acquired valvular lesions mitral incompetence was more common than all others combined; mitral stenosis was more frequent than aortic incompetence. The lesions were associated with all grades of cardiac reserve force. An infantryman presenting aortic incompetence had two and a half years' service, one year being overseas, and he was fit for full duty until he sprained his ankle; a second, with facial manifestations of congenital syphilis, had for nine months been fit only for light duty in the cook-house; while a third died of acute endocarditis of the aortic valve after seven days' illness. The men with organic disease of the mitral valve likewise differed in their capacity for exertion, and in many this was remarkably good. In illustration we may cite the case of a lance-corporal who had suffered from rheumatic fever nine years previously, but from no subsequent illness, and who had made a desert march of 15 miles six months before he was evacuated to hospital on account of mitral stenosis. But others had long been ailing; for example, a private, aged 37, who had been breathless since he had scarlet fever at the age of 14, and who presented the characteristic signs of mitral stenosis and incompetence.

In the differentiation of mitral incompetence as a result of organic disease from that of cardiac dilatation we relied mainly on a history in civil life of acute infective disease, and particularly of rheumatism, on downward or outward displacement of the apical impulse, and on the quality and persistence of the apical systolic murmur. In the mitral incompetence of cardiac dilatation we usually found a history of a recent acute infection (diphtheria, dysentery, malaria, &c.) and signs of anæmia; the left ventrical was not hypertrophied, there were usually coincident systolic murmurs at the pulmonary and tricuspid areas, and the murmurs lessened or disappeared with rest, to reappear after exertion. Moreover, the murmurs of cardiac dilatation, as a rule, disappeared entirely when the patients' general health was restored, whereas those of organic nature persisted throughout the patients' stay in hospital and in depôt.

In all cases of valvular disease and of cardiac dilatation, except those obviously unfit, the heart's functional capacity was tested in the manner already described. Men with aortic incompetence were invariably invalided home. Most of those with mitral stenosis were found, after a few days' testing in hospital, to be fit for the lighter grades of physical exercise. They were usually classified B III., and discharged to sedentary duties; only a few were transferred to the depôt for further testing and training, for it was seldom considered desirable to place even the fittest of them in a category higher than B III. Most of the men with mitral incompetence were found to tolerate the lower grades of exercise well, and were transferred to the depôt; nearly a half of those transferred were eventually classified B II.

Degeneration of the myocardium and chronic myocarditis were rarely observed, although arterial sclerosis was common in the elderly men of garrison battalions and labour corps. Auricular flutter was observed in only one man.

This patient was 31 years of age, had been a bookmaker's assistant in civil life, and had enjoyed uniformly good health. After ten months' service in France he was wounded in the arm. Seven months later he was graded B II, and while employed in a supply depôt at Kantara, began to complain of præcordial pain, dizziness, breathlessness, and sleeplessness The arteries were thickened, the heart was not enlarged, and its sounds were pure, the auricles were fluttering at a rate of 200 per minute, the ratio of auricular to ventricular systole being inconstant He was never confined to bed, and never had any urgent symptoms during two months' stay in hospital before he could be invalided

Auricular fibrillation was observed in two cases, but no case of alternation, of heart block, or of nodal (atrio ventricular) rhythm came under our care

Disordered Action of the Heart

Of the total cases 1774 (73 per cent) were returned as D A H. The symptoms and physical signs of these cases corresponded with those described in other theatres of the war, or with D A H. as seen in civil practice, and need not be detailed Five groups of cases were differentiated 1. The toxo metabolic group, with a definite history of infection, and with toxæmia and often disorders of metabolism resulting therefrom This group was subdivided into (*a*) Type general, with wide spread toxæmia, lowering of the general health, and the exhaustion syndrome, and (*b*) type cardiac, with symptoms and signs referable mainly to the circulatory system and its nervous control 2 Cases with minor degrees of arterio sclerosis, about 2 per cent. of the total cases. 3 Neurosis 4 Effects of strain. 5 The immature or untrained heart

Infection was by far the most potent factor in the ætiology of D A H, but neither in the toxic or metabolic group of cases, nor in those in whom the primary disability was a neurosis, were there any signs indicating hyperthyroidism In a series of 717 cases special inquiry elicited a clear history of acute infection in 41 4 per cent, while 50 per cent either gave a history of infection or were affected with anæmia, which was probably of infective origin Of the causal infections, the most frequent were diphtheria (9 4 per cent), rheumatic fever and chorea (6 7 per cent), dysentery (3 9 per cent), bronchitis (3 8 per cent), malaria (3 1 per cent), tonsillitis (3 0 per cent), scarlet fever (2 4 per cent), pneumonia and enteric (each 1 2 per cent) In very few of our cases was D A H a sequel of gas poisoning, in none was it caused by trench fever Of all the common forms of D A H, that arising as a late sequel of diphtheria was the most severe, persistent, and intractable As demonstrating the importance of this disease in the causation of D A H, we note that of 531 cases of diphtheria admitted to the hospital in 1917, 12 per cent developed transient D A H during early convalescence, and that of a total 530 "heart cases admitted during the period July to December of the same year, 72 (13 5 per cent) were post diphtheritic D A H It was not considered advisable to give to cases convalescing from diphtheria any course of training in the hospital The more severe cases, when semi convalescent, were transferred to another hospital for further rest, the lighter cases were retained in hospital for not less than six weeks from the onset of the primary disease, and before being transferred to the convalescent depôt they were classified "B III for two or three months after convalescence" In appropriate cases an entry was made in the man s pay book of his being unfit for fatigues or for marching The best treatment of post diphtheritic D A H is prophylaxis

D A H was more often post dysenteric than post malarial, and the latter was less severe and less persistent, though we occasionally observed acute, and in two instances fatal, heart failure in the course of malignant malaria Further evidence of the relative infrequency of malaria as a cause of D A H is afforded by the statistics of the medical division of the hospital for 1917, the total admissions for malaria being 1539, as contrasted with 960 for dysentery and 1336 for enteritis and diarrhœa and also by the returns for 1918 when there were only 1358 cases of dysentery as against 5879 cases of malaria for the first 10 months of the year. Moreover, during the last quarter of 1918, when malaria was most prevalent and severe, D A H. was almost a rarity The explanation of the greater frequency and severity of post dysenteric D A H is probably the profound toxæmia associated with the intestinal infection of bacillary and of amœbic dysentery Of 2318 cases of dysentery, 353 (15 per cent) were amœbic

Neurosis —In only 2 5 per cent of 717 cases of D A H was there a definite history of shell or bomb explosion In a further 2 3 per cent the disorder was essentially a neurosis, the most striking examples being in men of Celtic type Anxiety, tremor, and exaggeration of the tendon reflexes were specially pronounced, the pulse rate remained persistently high and was unduly accelerated by slight sympathetic stimulation, dyspnœa was trivial or absent even although the respirations were accelerated to three or four times their normal rate Rest in bed was of no benefit and might even be prejudicial During their course of training in the depôt the men of the neurosis group presented persistent tachycardia, without dyspnœa or distress, and little or no benefit accrued to them from training Few of the men of this group became fit from category A, and readmissions to hospital were much more frequent than in the case of other groups Nevertheless, these men had a genuine disability and were not malingerers

The effects of strain —In only a few cases was strain the dominant factor, and even in them there was no certainty of the heart having been altogether normal prior to the stress The men's ages varied from 20 to 40 Six had indulged in strenuous pursuits two were sprinters, two bakers, one a rower All had been remarkably free from infection, and in all but two the symptoms arose after a definite effort greater than had been customary In about one third of the cases the heart was slightly enlarged, in two the cardiac impulse was forcible, soft systolic murmurs were common The average pulse rate was nearer 90 than 80 effort induced marked acceleration, but the period of decline was, as a rule, normal or only slightly lengthened Of 17 cases specially noted, 12 were discharged to category A, 5 to category B I

The immature or untrained heart —The average age of the men in this group was below 19, and the weight was below normal The men's habits in civil life had usually been sedentary, and in the army they had been employed as mess waiters, officers' servants, cooks, or clerks, and had not presented symptoms until undergoing the unwonted strain of marching In response to training improvement was slow but usually satisfactory, about 60 per cent of these men were discharged to category A

Extrasystoles were noted in 59 (6 6 per cent) of 896 cases The extrasystoles were usually single, occasionally multiple The ætiological factor was anæmia, probably toxic, in 11, arterio sclerosis in 7, mitral stenosis in 6, mitral incompetence in 5, recent tonsillitis in 5, rheumatic fever, diphtheria, dysentery (each) in 4, dilatation of the heart, neurosis (each) in 3, gas poisoning and rheumatic fever, scarlet fever, enteric, pneumonia, malaria P U O (each) in 1. In 17 of the 59 cases there were signs of organic valvular disease

Disposal

Of 2156 men whose ultimate disposal was known, 68 (3 1 per cent) were invalided home, 5 died All cases of aortic incompetence and of myocardial degeneration were invalided Men who were fit only for category B III were discharged to sedentary duties In 1917 18 1990 men of all categories were transferred from hospital to depôt, and 69 per cent of these were ultimately discharged to category A In 1917 we had 1283 men under our care 695 (54 per cent) were discharged as category A, 103 (8 per cent) as "temporary base, 115 (8 9 per cent) as B I, 126 (9 8 per cent) as B II, 168 (13 per cent) as B III, 16 (1 2 per cent) as category D (duty in command depôt), 34 were invalided home, 2 died, and 24 were transferred to other hospitals in Egypt In 1918, when the required standard of fitness was certainly not lower than that demanded in 1917, our statistics show a higher percentage of return to full duty. 906 men were transferred to the command depot: 773 belonged to category A, 57 to B I., 58 to B II., 18 to B III. These 906 men were disposed of as follows: To category A, 672; to B I., 119; to B II., 91; to B III., 24. Thus of 906 men of all categories transferred from hospital to command depôt 74·4 per cent., and of 773 men of category A 86·9 per cent., were discharged to category A. These figures illustrate the great value of the training in a command depôt.

In 1917 the disposal of 500 men transferred from hospital to a convalescent depôt was specially analysed by one of us (A. L. K.); 340 cases of D.A.H., 180 of the type-general and 160 of the type-cardiac, were reviewed. Of the type-general 80 (44 per cent.) were discharged as category A, 21 as temporary base, 21 as B I., 51 as B II., and 7 as B III. Thus 32 per cent. were discharged to the two lower grades of category B. In the type-cardiac the results were better, 93 (58 per cent.) being discharged as category A, 21 as temporary base, 14 as B I., 26 as B II., and 6 as B III. Consequently, only 18 per cent. were discharged to B II. and B III. In D.A.H. of the type-cardiac the beneficial effects of graduated training were most evident. We often noticed that a man who laboured under discomfort at the beginning of the morning exercises finished comparatively fresh. Progress was, on the whole, more satisfactory than in the type-general, for the percentage of men who attained category A was 58 in the type-cardiac and 44 in the type-general.

In 92 cases of this series of 500 there was organic disease of the heart or arterial sclerosis; 43 (45 per cent.) were also affected with D.A.H. of infective or toxic origin. Of 16 cases of myocardial disease, with a history of recently superadded infection, 7 became fit for B II. and 9 for B III. category; whereas of 12 myocardial cases with a history of long-standing disability but no recent infection, 2 became fit for B I., 8 for B II., and 2 for B III. category. This group also contained 47 cases of valvular disease, practically all being mitral incompetence. Nineteen of these men gave a history of recently superadded infection, and their disposal was: Category A, 3 (15·7 per cent.); temporary base, 1; B II., 13; B III., 2. Thus 79 per cent. attained only B II. or B III. standard. The remaining 28 cases of V.D.H. were of old standing and without any recent infection. Their disposal was: Category A, 6 (21·5 per cent.); B I., 5; B II., 12; B III., 5. Considering the V.D.H. group as a whole, we are forced to recognise the frequent limitation of response to sustained effort. Few of the men attained category A, but the vast majority became fit for B II. or B III. categories.

In 130 men of the series of 500 there was a rheumatic history. Their disposal was as follows: Category A, 34 (26·1 per cent.); temporary base, 10 (7·6 per cent.); B I., 19 (14·6 per cent.); B II., 52 (40 per cent.); B III., 15 (10·7 per cent.). Whereas 42·4 per cent. of the series of 500 were discharged to category A, only 26·1 per cent. of the rheumatic group became fit for that category. Contrasting 63 cases with a history of rheumatic fever with 67 giving a history of other forms of rheumatic infection (myalgia, chorea, repeated tonsillitis, &c.) 23·8 per cent. of the former returned to category A, and 61·9 per cent. were classified B II. or B III., whereas of the latter 28·3 per cent. returned to category A, and only 41·8 per cent. had to be classified B II. or B III. The disposal of 59 men presenting extrasystoles was as follows:—

Diagnosis.	A.	T.B.	B I.	B II.	B III.	Invalided.	Total
D.A.H.	22	4	1	1	1	5	34
V.D.H.							
Mitral stenosis...	—	—	—	—	3	3	6
Mitral incompetence	4	1	2	1	2	1	11
Dilatation of heart	5	1	—	—	—	—	6
Hypertrophy of heart	1	—	—	—	—	—	1
Degeneration of myocardium	—	—	—	—	—	1	1
—	32	6	3	2	6	10	59

(Continued at foot of next column.)

ACCESSORY FOOD FACTORS (VITAMINES) IN THE FEEDING OF INFANTS.[1]

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IT is obviously a matter of great difficulty for a laboratory worker to open up a discussion concerned with the feeding of children. The task is not rendered easier by my consciousness of the exceptional difficulty in arguing from one species of animal to another when dealing with questions of diet and metabolism. Every worker on the subject of vitamines has this difficulty always before him. We must also recognise that much of the accessory food factor story has not been extended to children or tried beyond the laboratory walls. It is just for these reasons, however, that a discussion in which the laboratory worker and the clinician meet face to face is of great value. The physiologist may throw new light on the points under discussion, and, still more important, the clinician may assist the investigator in evaluating his experimental results and so prevent the exaggeration of one fact at the expense of another.

We have to consider the part played in the nutrition of infants by the three known accessory food factors: (1) antiscorbutic; (2) fat-soluble A; (3) water-soluble B or antineuritic. From the point of view of the children of this country we can probably eliminate the water-soluble B factor. Although infantile beri-beri exists in rice-eating countries, and probably in other places where one-sided and limited diets are in use, the extensive distribution of this factor in food, together with its well-recognised resistance to heat, would appear to make disease due to its deficiency unlikely to occur in Western countries.

Problems Concerning the Antiscorbutic Factor.

Of the antiscorbutic factor I shall say but little. I suggest, however, that there are certain points in connexion with this factor which urgently require consideration. It would be interesting if we could have authoritative statements on the following points: (1) Is the scurvy problem among children of this country one involving real danger? We know that the classical scurvy symptoms are rare, but it is not equally certain that milder symptoms indicating a deficiency short of the production of scurvy are not common. (2) Is it essential that children feeding on dry milk compounds alone should take orange or swede juice?

The second problem involves an answer to two questions: (1) How much of the antiscorbutic factor is destroyed in the drying of milk? (2) How susceptible is the child as compared with the experimental animals? Speaking without any particular knowledge on this point, I should think it probable that, although an infant feeding entirely on whole dried milk may not require extra antiscorbutic, yet when cereals are added to the diet additional antiscorbutic factor will be essential.

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[1] Opening Remarks at the Discussion at the Section for the Study of Disease in Children of the Royal Society of Medicine on Feb. 27th, 1920 (v. THE LANCET, March 13th, p. 604).

(Continued from previous column.)

For their assistance in the diagnosis, treatment, training, and classification of the patients we desire to express our thanks to R. W. Aitken, J. B. Binns, R. Bruce, W. K. Calwell, H. E. Charles, E. E. Chipp, M. A. Collins, S. J. Fielding, J. K. Lund, S. C. W. Morris, F. J. Pierce, and J. L. Torley.

The Relation between the Fat-soluble A Factor and the Antirachitic Factor.

I propose to deal with what is possibly the fat-soluble A accessory factor. You may remember that the identification of the fat-soluble factor depended on work by Macollum in which the growth of rats was studied. The antirachitic factor, on the other hand, has been so called because of the effect of certain substances in preventing the development of rickets in dogs. Whether they are identical is unsettled, but one point of difference is so striking that it is essential to bear it in mind. The fat-soluble factor is, according to the rat-feeding experiment, absent from all vegetable fats. In the rickets experiments, however, it seems definite that the amount of antirachitic factor is fairly high in some vegetable fats, such, for instance, as peanut, cotton-seed, and coconut oils, and is only present to a small extent in palm-kernel, linseed, and babassu oils.

A second point worthy of emphasis is that fat-soluble A does not appear to be as necessary for growth in the case of puppies as it is in rats. It is true that all the diets of the puppies must have contained a trace of fat-soluble A, but the growth was often just as good when the diet was very deficient in this factor as when containing it in abundance. This fact, previously described by me, has been extended to children recently by Hess and Unger. On a diet of dried separated milk, sugar, cotton-seed oil, autolysed yeast, orange juice, and cereal, sustained over many months, they found the growth of children practically normal. The question arises as to whether, in speaking of the fat-soluble factor in relation to child nutrition, we should still continue to call it a "growth factor." For the growth of puppies and children its influence is probably smaller than that of the other elements of the diet.

It seems most likely that both these differences—that is, (1) the difference in distribution of the fat-soluble factor and the antirachitic accessory factor in vegetable fats; (2) the importance of the fat-soluble factor for the growth of rats and its probable unimportance in the growth per se of puppies and children—can be explained by variations in the general and intermediate metabolism of these animals. These points will, no doubt, be ultimately solved by further experimental work.

In the meantime I would beg those who are extending the results of experimental research on rickets to children not to mix up the two types of work—namely, the growth experiments on rats and the rickets experiments on puppies. In giving cotton-seed oil to children, as recently carried out by Hess and Unger, they had in their minds undoubtedly the generally accepted fact that this oil contained no fat-soluble A. On the other hand, so far as my experiments have shown, cotton-seed oil is to be classed as one of the better vegetable oils in preventing rickets, and, taken in conjunction with the other conditions of diet as described by Hess and Unger, it does not appear to me surprising that rachitic symptoms did not develop. I shall touch again on their experiments later.

From my earlier work, a short account of which has been already published, I consider that it is undoubted that something of the nature of a vitamine, distributed in varying quantities in fats, plays an important part in the development of rickets. I do not wish now to deal further with this particular point. In view, however, of the erroneous and exaggerated views that are widespread as to the action of the antirachitic accessory factor in diet, it is essential that an effort should be made to bring such substances away from their atmosphere of mysticism, and place them side by side with other elements of the diet. If we can in some way link up their action with the known dietetic substances, so that we can discuss them in terms that are familiar, good progress will have been made along these lines. I propose, therefore, in the remaining time at my disposal, to describe some of the more recent results of my experimental work carried out with this end in view.

The Relation of the Antirachitic Factor to Age.

It is a well-recognised clinical fact that active rickets is a rare disease in children over 2 years of age. On the other hand, arguing on the basis of my experimental results obtained with puppies, it is equally certain that, after this age, the diet of a child is often of a more rickets-producing nature—that is to say, it is frequently composed more of bread and other cereals and less of milk. The only deduction that is possible from these facts is that after a time a child becomes more independent, from the rickets point of view, of its diet. I wish to emphasise that it is only the rickets point of view I am discussing. No further deduction from this result must be made as regards resistance to infection or any other pathological condition produced by diet, and more particularly the antirachitic factor of diet at various ages. The fact that the antirachitic accessory factor is of less importance in the older child is also brought out strikingly in puppies. It is obvious for the following well-defined reasons. (1) After the puppy has arrived at a certain age I have been unable to produce rickets by feeding it on rickets-producing diets. (2) On definite diets puppies develop rickets, but if not too severe, and the general condition does not become too bad, recovery at the growing ends of the bones, as indicated by radiographic examination, often takes place, although the animal may remain on the same diet and under the same conditions.

To take the first of these facts, a puppy put on to a rickets-producing diet of separated milk, white bread, meat, orange juice, and linseed oil at the age of 5 months was photographed (Fig. 1) and radiographed (Fig. 3) at the age of 10½ months and was found to be free from rickets. Fig. 2 is a radiogram taken at the age of 5 months, before beginning special diet. The dieting has now been continued over 11 months in all, and the dog is still well and healthy and shows no signs of rickets. The earlier treatment of this particular dog I shall refer to later, when I deal with the effect of exercise and confinement on the development of rickets.

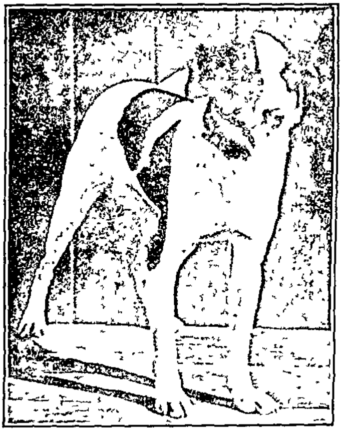

FIG. 1.—Photograph of a puppy, 10½ months old, which has been *on a rickets producing diet for the last five months* without developing rickets.

As regards the second of the above facts, photographs show an instance of self-cure in a puppy when the diet and other conditions were kept as far as possible the same as when the rickets developed. Figs. 4, 5, and 6 represent the changes taking place in the wrist of a puppy. The diet in this case consisted of separated milk, bread, orange juice, yeast, meat, and linseed oil, and you will see that on March 28th, after 3½ months of this diet, rickets had developed. It will be seen, however, from Fig. 5 that, one month after the first radiograph, the healing process had started and renewed calcification is evident between the epiphyses and diaphyses of the distal ends of the radius and ulna. In Fig. 6 the healing process had continued to a further stage. Here, then, we have evidence of a self-curative process taking place in a puppy as it grows older quite comparable to the self-cure which is well recognised as taking place in children.

The above facts can be taken as evidence that the antirachitic accessory factor is more necessary in the diet the younger the animal—that is to say, until some essential process or secretion has developed in the young animal. Until this process has evolved (of its nature I have no idea at the present time) rickets will more readily develop. After the necessary establishment of the new process in the young animal or child, it is a matter of some difficulty to produce rickets. Whether all new calcification processes proceed normally after this event, even in the presence of deficient diets, still remains unknown, but further experiments will soon clear up this point. I should expect that a deficient diet will continue to act in a detrimental way to calcification processes, but possibly not to such a profound extent as in the younger animal and child. It is probable that the legs will continue to bend owing to poor calcification of the periosteal bone of the shafts even after there is good evidence of a healing process going on at the epiphyseal ends. The recovery and calcification of the periosteal bone of the shaft appears to be a much slower process than that at the growing ends.

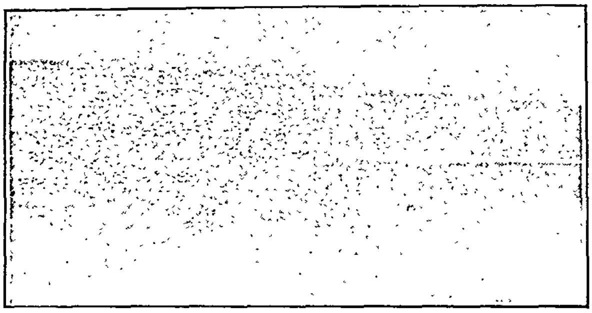

FIG. 2.—Radiogram of puppy in Fig. 1 at the beginning of experimental feeding, showing healthy wrist-joint.

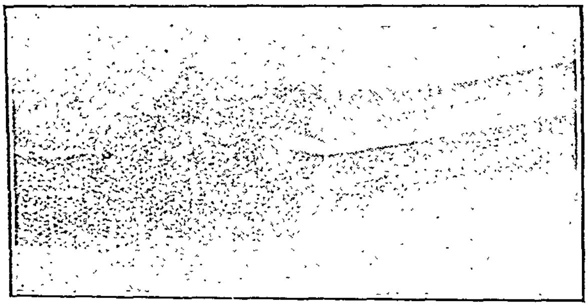

FIG. 3.—Radiogram of puppy in Fig. 1, taken at same time as the photograph, showing healthy wrist-joint.

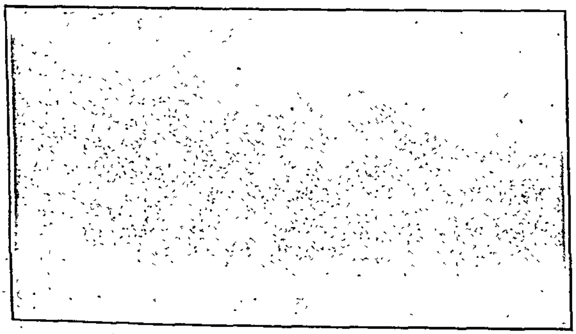

FIG. 4.—Rickets in wrist-joint of a puppy after 3½ months of rickets-producing diet in spite of complete freedom.

The Relation of the Antirachitic Accessory Factor to the Energy-bearing Portions of Diet.

In a paper already published I laid stress on the fact that, although rickets is primarily a deficiency disease of a dietetic nature, other metabolic conditions must obviously be involved, because it is impossible to regard the accessory food factors as independent of the general metabolism and of the other elements of the diet. I emphasised the unity of a perfect diet because we are becoming more and more aware that the removal or deficiency of one element in the diet involves much more than the absence of function or defective function carried out by this one element. It also means that the other parts of the diet cannot do their task efficiently because of the constant interplay between the chemical changes in the body and their dependence on each other. During the past 18 months I have been endeavouring to prove that the same dependence and inter-relationship holds between the vitamines and the proteins, fats and carbohydrates and, although this part of the work is still in progress, sufficient evidence has been obtained to allow the conclusion that their interaction in metabolism is of great importance so far as the development of rickets is concerned. I have explained in my earlier work how the tendency to rickets is increased by more rapid growth, using the weight of the animal as the indication of growth. I am fully aware that increase in weight is not a true indication of rate of growth, because it obviously includes other factors, such as the laying on of fat. For the present, however, I shall confine myself to the relation of the development of rickets to the increase of weight. In many of the experiments the only variable part of the diet was bread, given generally to the animals *ad lib.* Therefore it is evident that, other things being equal, the greater the amount of bread eaten the greater will be the tendency to rickets. This generality is probably true, so long as the increased bread intake results in an increased *storage* of foodstuff, retained by the animal as body tissue. The same condition probably holds with oatmeal and other cereals.

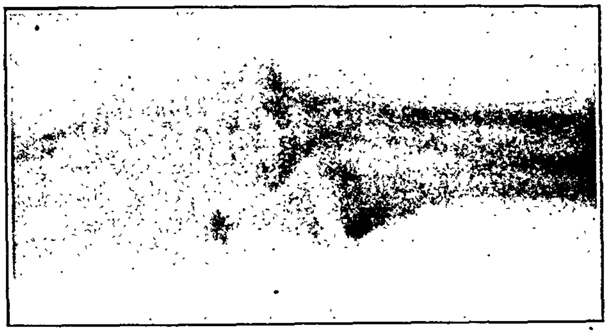

FIG. 5.—Wrist-joint of same puppy as Fig. 4 one month later, undergoing self cure. Puppy on same diet.

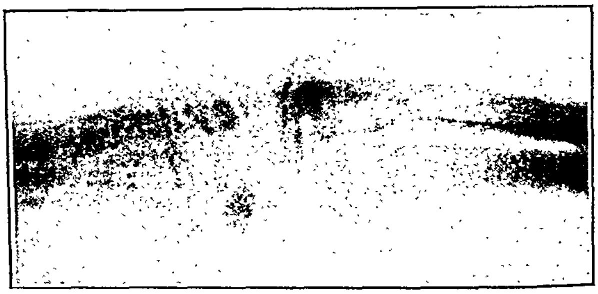

FIG. 6.—Same puppy as Fig. 5 one month later, showing healing process still further advanced.

In order to illustrate this point I shall show you an experiment carried out on three puppies of the same litter. The diet in each case consisted of separated milk, white bread, orange juice, meat, and palm-kernel oil In Fig 7 you see the relative rates of growth of these animals In the course of growth 221, the least rapidly growing, gained 1700 g , 223 gained 2150 g , and 220, the most rapidly growing, gained 2850 g during the same period of 66 days Throughout the experiment, except that the meat was raised from 5 to 10 g per diem a few days earlier in 220 than 223 and 221, the only variable was the amount of bread eaten All other conditions, such as housing, were identical If, therefore, any great difference regarding the development of rickets occurred it can probably be ascribed to the variable bread intake The radiographs of these three puppies after about nine weeks of the diet can be seen in Figs 8, 9, and 10 It will be noticed that 221, the least rapidly growing, has very slight rickets, 220, the most rapidly growing, very severe rachitic changes, and intermediate between these two is 223, whose rate of growth is also midway between 221 and 220 Figs 11, 12, and 13 are photographs of these three puppies, 221 223 and 220 It will be seen that the bending and external appearances of their legs are in keeping with the radiographs of Figs 8, 9, and 10 Let me again repeat that I am only using the word growth in the sense of putting on weight It appears then that puppies, living under similar conditions, show a *greater tendency to develop rickets when the diet contains a larger amount of cereal, all other elements of the diet being kept constant* The question arises as to what special element of the bread is responsible for this greater tendency to rickets This point awaits complete solution, but evidence is accumulating which indicates that the carbohydrate moiety is the offending substance There is some evidence, on the other hand, that protein has an antagonistic action to the development of rickets In my earlier paper I referred to the effect of meat in making a slightly rickets producing diet into a safe one There is also an indication that casein has the same effect F G Hopkins has shown that ordinary commercial casein, as used in these experiments, may have a large amount of fat soluble A accessory factor associated with it Whether, therefore, the protein effect depends on its own action remains to be decided If the antirachitic effect of protein is established we will be able to comprehend one reason why milk is a better preventive of rickets than the corresponding amount of butter I wish to make it clear that increasing the protein alone in the absence of the antirachitic accessory factor does not make a diet safe My view is that it aids the antirachitic vitamine, *so that less of the latter will suffice to keep the growth normal* Carbohydrate, on the contrary, especially when it results in storage of fat, appears to have a decidedly rickets producing effect, and thereby makes additional antirachitic vitamine imperative

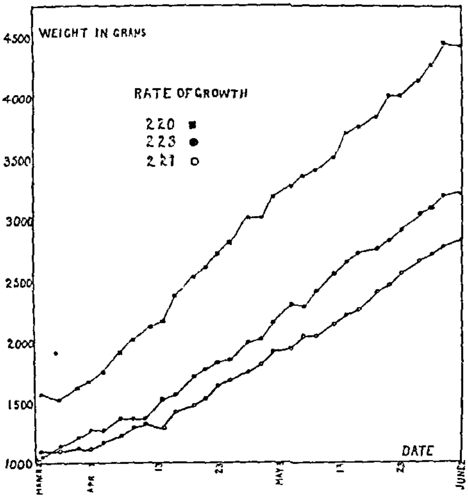

FIG 7—Relative rates of growth of three puppies of the same litter on diets differing only in quantity of bread eaten

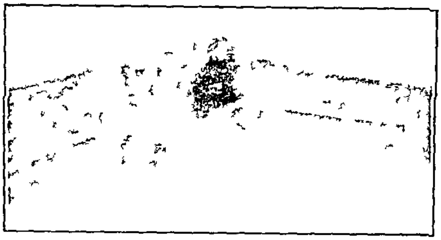

FIG 8 (221) —Very slight rickets only in wrist joint of slow growing puppy (Cf Fig 11)

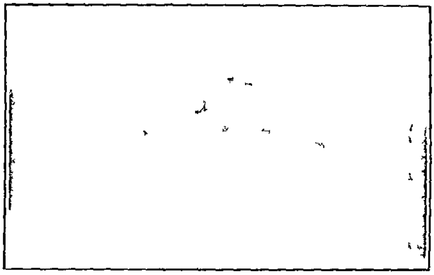

FIG 9 (223) —Rickety changes intermediate in severity between Figs 8 and 10 corresponding to intermediate rate of growth (Cf Fig 12)

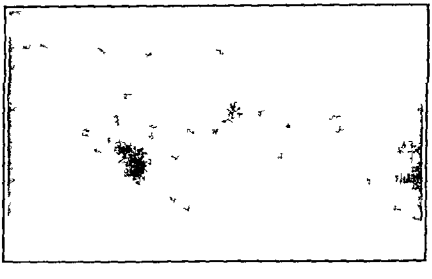

FIG 10 (220) —Severe rickets in wrist joint of most rapidly growing puppy (Cf Fig 13)

It is possible that Hess and Unger s recent feeding experiments on children referred to above, where they found that 180 g of a dried separated milk powder, 30 c cm of cotton seed oil, 30 g of sucrose, 15 c cm of orange juice, and 30 c cm of autolysed yeast, and, later, additional cereal per diem, did not produce rickets, may have as one part of the explanation the high protein intake of these children I have already explained that cotton seed oil is one of the better vegetable oils as regards its antirachitic action in puppies 180 g of a dried separated milk powder must have contained about 65 g of protein, an amount which is abnormally high for children from 5 to 9 months old This high protein intake, together with the antirachitic factor of the cotton seed oil, appear to me to explain satisfactorily the fact that rickets did not develop in these children As regards their observation that the children grew fairly well, in spite of the great deficiency of the fat-soluble accessory factor, this is additional evidence that it is not impossible to argue from my experimental results on puppies to children, as I have previously commented on the good growth that can be obtained in puppies under the same condition.

I should further like to point out that the whole subject of the relationship of accessory food factors to the energy-bearing portion of the diet is one of great importance, and it is necessary that investigations on scurvy and beri-beri should also be undertaken in this connexion. It will be generally agreed that neither scurvy, beri-beri, nor rickets will develop as the result of starvation only. Therefore we must consider whether there is not a positive side also to these dietetic diseases. We know in the case of scurvy and beri-beri that administration of the suitable vitamine will effect a cure, but is it not also probable that the diseases are brought on by some other element of the diet, since they do not develop as the result of starvation? There is some direct evidence that this is the case in avian polyneuritis, and the offending element in the diet is probably carbohydrate. Results tending to prove this have been obtained by Abderhalden, Braddon and Cooper, and Funk. So, also, in the case of rickets, it may be ultimately established that it is excess of carbohydrate in an unbalanced diet which is largely responsible for the development of the disease, and that it is the special function of the antirachitic accessory factor to prevent the abnormality. The fact that the laboratory results obtained on deficiency disease have not been entirely confirmed in practice may be the result of the omission to link up accessory food factors with carbohydrates and the other energy-bearing substances in the diet.

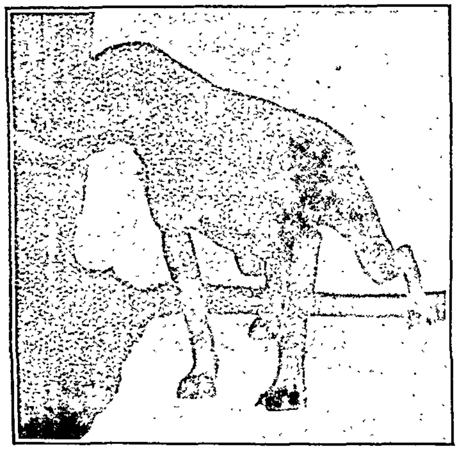

FIG. 11 (221).—Slight rickets. Wrist-joint shown in Fig. 8.

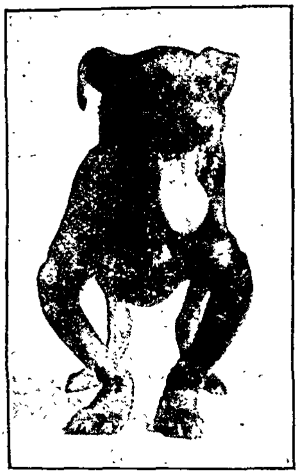

FIG. 12 (223).—Rickets intermediate in severity between Figs. 11 and 13. Joint shown in Fig. 9.

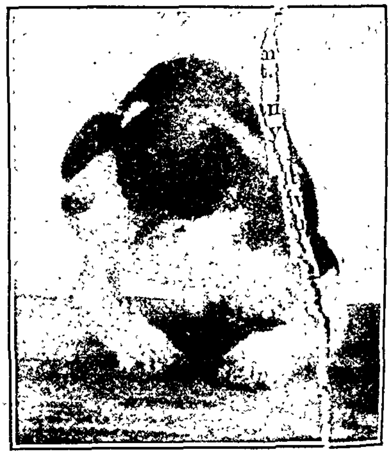

FIG. 13. (220.)—Severe rickets. Joint shown in Fig. 10.

The Effect of Exercise on the Development of Rickets.

I have previously pointed out that, although I considered Finlay's results showing the effect of exercise on rickets to be important, I do not think exercise the prime factor in the ætiology of rickets, but only subsidiary to diet. It is, however, obvious that the ultimate explanation of rickets must embrace this also. Whatever inhibitory effect the constant running about has in the case of puppies, we must, when considering the disease in children, discount a large part of this effect. The reason for this is that rickets develops in many children when only 6 months to 1 year old, and it is difficult to see how running about can play a large part at this age. The exercise obtained by children at this period of their life consists of small movements which make up their general liveliness, and I think it will be agreed that the activity of a child depends, more than anything else, on the adequacy of its diet. Surely the size and number of rooms in the house where the child may carry on its movements are of subsidiary importance to its diet. If exercise and muscular contraction are the explanation of the ætiology of rickets, then there is clearly a simple method of eliminating the disease from Vienna, and the apostles of this gospel ought now to be preaching the glad tidings and observing its effect there. It appears to me absurd to think that the wide-spread and intense nature of rickets in Vienna and elsewhere in recent times has arisen primarily because of any lack of exercise or because of the more defective hygienic conditions that may have developed within the last few years.

My experiments on exercise have been made along various lines and the results obtained may be briefly stated: (1) Confinement on an adequate diet will not produce rickets. (2) Freedom in the daytime will not prevent rickets when the diet is inadequate. (3) Confinement will not prevent the cure of rickets, when the diet is good. On the other hand, complete freedom and the possibility of constant running about, will oppose to some extent the rickets-producing effect of a deficient diet and may carry it over to the safe side in small, slowly-growing dogs.

Fig. 1 is a photograph of a dog previously referred to, which was confined from the second to the fifth month of its life. During this period its diet consisted of 250 c.cm. whole milk, 20 g. meat, 5–10 c.cm. cod-liver oil, 5 c.cm. orange-juice, and white bread. In spite of the absence of the opportunity for exercise, it was a beautiful dog, showing no signs of rickets, as can be seen from the radiograph (Fig. 2) taken after the period of confinement.

The brother of this puppy was allowed complete freedom during the daytime (with a special type of muzzle on) and developed slight rickets, which can be seen in Fig. 4. It was eating a rickets-producing diet during this period, consisting of 175–250 c.cm. separated milk, white bread ad lib., 5–10 g. meat, 10 c.cm. linseed oil, and 5 c.cm. orange-juice. This animal was an instance of self-cure and, while living under the same conditions, calcification of the growing ends of the bones was resumed. This point is seen in the radiographs (Figs. 5 and 6), and has been previously commented on. The rate of growth of this puppy was not very good—it increased 2730 g. in 19 weeks while eating the diet.

Here, then, we have instances of two puppies (terriers), and members of the same family, the one remaining normal in spite of lack of exercise and the other developing rickets with full opportunity for exercise. The dominant factor in each case was the diet. The first dog had an abundance of antirachitic factor in its diet, which included whole milk and cod-liver oil. The second on separated milk and linseed oil was getting little or no antirachitic factor. I wish to repeat, however, that muscular contraction has some inhibitory action on the development of rickets and must be considered in the general scheme.

The points I have discussed, more particularly the relation of the antirachitic accessory factor to the energy-bearing portions of the diet and to exercise, indicate plainly that rickets must be considered as a problem of general metabolism. As a working hypothesis it seems possible to formulate a general scheme in which each of the various elements already discussed can find a place. Any condition which induces a laying on of tissue seems to necessitate a greater intake of antirachitic accessory factor to prevent rickets. On the other hand, conditions which stimulate the metabolism and increase the heat loss relatively to the energy of the stored food work together with the antirachitic accessory factor, and make a less amount necessary for normal growth. For instance, excessive carbohydrates in the diet often brings about a condition of laying on of fat associated with lethargy. Confinement works in the same direction. The diet under these conditions must have more antirachitic accessory factor, otherwise rickets develops. Proteins and exercise, on the other hand, are stimulants to the metabolism, and, when the diet has a relatively high protein content, and the animal is active, less antirachitic accessory factor is necessary.

It is upon this hypothesis that my present investigations on rickets are being continued, and while it is freely admitted that it is not based on complete experimental evidence, a general conception is always useful to an investigator, and can do no harm so long as it is regarded by others in its true light. The generalisation may not explain all conditions under which rickets develops, but we are in the satisfactory position of knowing that its proof or disproof can be easily tested by further experiment.

The Importance of the Antirachitic Accessory Factor in the Feeding of Children.

Up to the present I have dealt entirely with the effect of the antirachitic vitamine in the case of puppies, and it may be of interest to attempt to supply some evidence in support of the animal results, which show that, in the case of children also, this substance is of great importance. I shall deal with two investigations[2] carried out at a time when the presence of the antirachitic accessory factor in food was undreamt of.

In examining school children at Leeds Dr. William Hall was much interested in the great difference in general nutrition, and more especially in the teeth of Jewish and Gentile children, the financial position and housing of whose families were comparable. The results of his investigations were described at a health congress in Leeds in 1902, and his general observations and conclusions are so concordant with my experimental results that I should like to record them. The table here given represents a few of these results.

	Rickets.	Bad or backward teeth.
Good district Gentile school ...	8%	38%
,, ,, Jewish ,, ...	5%	11%
Poor ,, Gentile ,, ...	50%	60%
,, ,, Jewish ,, ...	7%	25%
Country school (Ripon Cathedral School)	11%	33%

The great difference between these two classes of people, more especially in the poor schools, is very striking. It will be further observed that the condition of the poorest Jewish children is better than that of the country children.

Hall then proceeded to investigate the cause of the above-described differences, and finally decided that only the dieting could be held responsible. From his analysis of the diets, which he found very different in the two classes of the community examined, I take the following points: 1. The Jewish families used large quantities of oil in cooking, even in making bread. Fish were generally fried in oil. Potatoes were not boiled in water. If boiled it was usually in milk. Otherwise they were cooked in oil. In making broth, butter and oil were added to it. 2. The normal beverage was cocoa made with milk. This was usually drunk three times a day except on the days when meat was eaten. 3. An analysis of the eggs eaten by the Jewish families showed the large numbers consumed. 4. Fruit and vegetables were used abundantly. 5. The Jewish mothers combined to buy large quantities of the cheaper fish in the market. Herrings were commonly eaten.

Dr. Hall's conclusions as to the inferior physique of the Gentile families were (1) that it did not depend on heredity or on city life; (2) that it was purely dietetic. My researches on animals are in complete agreement with the outcome of these investigations. The diet is certainly the key to the physical defects so common among urban and city inhabitants. It is also remarkable how closely the diets of the Jewish community as observed by Hall follow the animal experimental results. Nearly all the substances mentioned by Hall contain an abundance of antirachitic accessory factor.

The next subject connected with diet and child nutrition to which I wish to refer concerns the inhabitants of the Island of Lewis in the Hebrides. The facts I shall mention are taken from the Carnegie Report of the Physical Welfare of Mothers and Children of Scotland. Many of the inhabitants of these islands live in what are called "black houses." A photograph of a typical "black house" is shown in Fig. 14. They are constructed of turf and stones with a thatched roof. There is often no chimney to the house, and since the peat fires are kept constantly burning and there is no exit for smoke except through the door, the condition of the atmosphere of the house can be well imagined. The walls are often as much as 5 feet thick. Cattle often live under the same roof, the byre adjoining the house, and it is sometimes necessary to pass through the byre to enter or leave the building. Chickens have full run of the house and go on to the beds, tables, and dressers. Altogether the hygienic conditions are dreadful. What about the children? The statements are made in the report: "The children are not taken out until they can walk"; "never taken out until they can walk, except possibly for a few minutes on a fine day in the summer time." It is quite clear, therefore, that, if bad hygiene and lack of exercise are responsible for rickets and ill-health, then the infants of Lewis ought to succumb at a great rate. What are the facts? The main fact is that the death-rate of these infants under 1 year is about the lowest in the British Isles, and has occasionally fallen to as low a figure as 40 per 1000. This death-rate compares very favourably with the infantile mortality of 100 to 300 per 1000 usually found in the towns of this country, in spite of the efforts made to improve the general hygiene. It is remarked that rickets is almost unknown in the island, and "the most striking fact in the adult population is

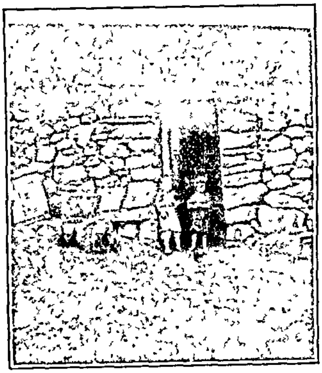

FIG. 14.—A typical "black house," Island of Lewis, in the Hebrides. The sanitary conditions are very bad, but rickets is almost unknown in the island. Note smoke of peat fire issuing from door.

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[2] These instances were kindly brought to my notice by Dr. H. Scurfield, medical officer of health for Sheffield.

their beautiful teeth—a testimony to the absence of rickets in infancy." Parenthetically, I regret that lack of time has prevented me from showing on the lantern some of the beautiful specimens of my wife's work on teeth—work that has shown that the formation of perfect and imperfect teeth and jaws is affected by diet in a similar way to the development of the normal and rachitic condition of bones.

If we now examine the diet of these people we find results in close agreement with expectations based on the above described experimental work on puppies. In the first place, practically all the children are breastfed. Again, an analysis of the foods eaten shows that the staple articles of diet are fish, oatmeal, and eggs. It is true that milk is scarce, except in the summer, but against this we have breast-feeding affording the opportunity to children to get milk at the most important period of their lives. As regards fish, we find that the liver of fish—that is, the best source of the antirachitic accessory factor—is regarded as the favourite dish. It is described as being mixed with oatmeal and milk and cooked in cods' heads, each member of the family being provided with a cod's head. It is almost certain that the breast-feeding of the children, together with the high protein and antirachitic accessory factor content of the adult diet, are responsible for the absence of rickets, the formation of beautiful teeth, and the very low infant mortality found in these islands, and that this is the case in spite of the dreadful hygienic condition of many of the houses. For the benefit of those interested in the antiscorbutic factor I may mention that vegetables are almost unknown in these parts.

Evidence is accumulating from various sources showing the effect of the diet of the mother on the accessory food factor content of milk, so that it is likely that the milk of the Lewis women is particularly rich in the antirachitic accessory factor. I do not wish, however, to discuss this point now.

If we follow up the mortality and health history of the Lewis children after the age of 1, additional facts of importance can be observed. From 1 to 5 the death-rate among the children is high, when considered in relation to the infantile mortality under 1. The housing conditions are such that epidemics spread rapidly and fatally, and phthisis in 1914 caused a death-rate double that on the mainland. When the children begin to go to school they fall off rapidly until they attain an age when they can look after themselves. This is because they generally have to go to school before their parents are out of bed, and so often do not get a real meal until midday. When the children have arrived at the age when they can fend for themselves and satisfy their appetite by seizing food, if need be, they develop well and ultimately become the fine stock so well recognised as coming from these islands.

The Relative Importance of Diet and Housing at Different Ages.

I have dwelt on this particular point because it seems to afford an opportunity of realising to some extent the relative importance of diet and housing at the different ages. It is difficult to avoid the conclusion that diet is everything to infants under 1, and so long as this is good, bad hygienic conditions are of small significance. After the first year, however, when the child becomes more susceptible to measles, bronchopneumonia, and other infections, then clearly the housing and hygienic factors, in addition to the diet, are of great importance. If these suggestions could be definitely proved and accepted, we should have gone a long way towards the solution of the problem of race decadence. It is reasonable to accept as facts that where there is low infant mortality there is an almost complete absence of rickets and the teeth of the people are good. Also that the production of rickets depends on a *relative* insufficiency in the diet of the antirachitic accessory factor, the best sources of which are fish oils, animal fats except lard, milk, and eggs. It is also probable that anything which stimulates metabolism, such as high protein in the diet and exercise, aids the antirachitic accessory factor; while excess of carbohydrate, especially if it leads to a laying on of fat, works in an antagonistic way to the vitamine and makes it necessary to have a greater amount in the diet to ensure normal growth of bone, formation of sound teeth and jaws, and good general health.

My investigation on rickets is still in progress and the results remain incomplete. The mode of production of the disease is obviously complex, otherwise it would have long been solved; but by considering and altering each factor in turn the animal experimental method will certainly in time clear up all the points of difficulty.

ON THE RELATION OF THE LIPOCHROME PIGMENTS TO THE FAT-SOLUBLE ACCESSORY FOOD FACTOR.

BY O. ROSENHEIM AND J. C. DRUMMOND.

(From the Physiological Laboratory, King's College, London, and the Biochemical Department, Institute of Physiology, University College, London.)

SOME two years ago, when studying the growth-promoting food factor known as fat-soluble A, we were struck by the similarity of the distribution of this important dietary constituent to that of fat-soluble or lipochrome pigments. Accordingly, we carried out a number of experiments in order to ascertain whether the accessory substance is related to, or identical with, a member of the class of pigments which are found in association with fats.

The chief lipochromes* which have so far been identified and isolated as well-crystallised substances are carrotene, $C_{40}H_{56}$ (from carrots, green leaves, milk-fat and corpus luteum), and its isomer lycopin (from tomatoes), xanthophyll, $C_{40}H_{56}O_2$ (from leaves), and its isomer lutein (from egg-yolk), and, finally, fucoxanthin, $C_{40}H_{56}O_6$ (from brown algæ). All lipochromes are characterised by their extreme lability and power to take up oxygen. The hydrocarbon carrotene, for example, is able to take up 500 times its own volume of oxygen, and on this account the important function of a respiratory pigment has been ascribed to it by botanists. It is certainly significant that carrotene occurs always together with its oxide xanthophyll in the chloroplasts of green leaves, where it is associated with chlorophyll. The lipochromes are also of frequent occurrence in lower plants and bacteria. The animal organism appears to be unable to synthesise these substances and depends on plant products for their supply. It is significant from our point of view to find that their occurrence in the animal body is most obvious in those organs and secretions which are connected with reproduction and the nutrition of the growing young (ovaries, egg, milk).

The Origin and Occurrence of Lipochromes in the Human Body.

Largely as a result of the painstaking researches of Palmer and Eccles[1] in America, we possess to-day much interesting information regarding the origin and the occurrence of these pigments in the animal body. These authors have demonstrated in a most striking manner how the colour of body-fat, milk-fat, or egg-yolk is derived from the lipochrome pigments ingested in the diet. Thus, the normal yellow colour of butter is due to carrotene and xanthophyll derived from the grass and roots consumed by the cow. Should the source of pigments be cut off, as, for example, by maintaining the animal on a diet of bleached hay and white corn, the butter-fat becomes progressively paler until it is practically white. That the fat does not lose its colour at once is attributed to a gradual utilisation of the reserves of pigments which are contained in the animal's body. Consequently, should cows be deprived of an adequate supply of the pigments in their diet, those whose body-fat is deeply pigmented with lipochromes, such, for example, as animals of the Jersey breed, will be able to provide a coloured milk for a longer period than those whose reserves of pigment are much smaller.

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* Thudichum (1869) was the first to recognise the near relationship of the yellow animal pigments (of egg-yolk, ovaries, blood serum, and milk-fat) to those of plants (of carrots, certain fruits, and flowers). He introduced the name "lutein" as a group name, which was later on changed into "lipochrome," and quite recently into "carotinoid." Since the name "lutein" has now been reserved for the yellow pigment of egg-yolk, and as "carotinoid" does not express the intimate association of these pigments with fats, we propose to retain the term "lipochrome," which is now well established in physiological literature. In accordance with the nomenclature adopted by the Chemical Society, the term "carrotene," indicating the hydrocarbon nature of the substance, is used in preference to "carotin."

If we consider other examples of the mobilisation of reserve substances which occur in the animal body, it will be found that such processes are of a protective nature, and are called into play when an important function is in danger of being stopped owing to a deficiency arising in the normal supply of a necessary substance. A good example of this may be seen in the protein metabolism of the lactating female. To ensure the survival of the species it is of fundamental importance that the nutrition of the young during the period of dependence on the mother shall be adequately provided for, even if the results are for the time being detrimental to the parent. When a lactating mammal is unable to obtain a sufficient amount of protein in her diet to provide material for the normal synthesis of the milk proteins she draws upon her own tissues to make good the deficiency, and will continue to secrete a milk normal as regards its protein content as long as this endogenous source will permit. Naturally, if the deficiency in the diet of the mother continues, sooner or later even this source will fail, and the nutrition of the suckling will be impaired. The process is, however, one which protects the young against temporary fluctuations in the nutritive value of its food. A similar mechanism has been elaborated in the animal organism for ensuring the presence of lipochromes in milk and egg-yolk when the diet of the female is one deficient in this respect; a fact which strongly suggests that the lipochromes play an important rôle in the nutrition of the young. That there is a similar protective mechanism which is concerned with providing the young with a supply of the fat-soluble accessory factor when the diet of the mother is deficient in that substance is already known.[2] [3]

Correlation between the Distribution of Fat-soluble A and the Lipochromes.

Apart from these interesting facts, we were impressed by the correlation of the distribution of the fat-soluble accessory substance and the lipochromes. This is illustrated by Table I., which contains a few of the chief examples. These observations led us to make a study of the functions of the lipochromes in nutrition and growth, and although our experiments are far from being complete, owing largely to an interruption of several months' duration, we desire to contribute this note in order to outline the results which we have obtained up to the present time.

TABLE I.—*Showing Distribution of Lipochromes and Fat-soluble A.*

Foodstuff.	Lipochromes*	Fat-sol. A.	Foodstuff.	Lipochromes*	Fat-sol. A.
Butter fat ...	+++	+++	Chicken fat	++	++
Egg-yolk... ...	+++	+++	Liver	++	++
Cod-liver oil...	+++	+++	Herrings (fatty fish)	+	++
Whale oil ...	++	++	Cod (white fish)	—	—
Beef fat (oleo-oil)	++	++	Lard	—	—
Kidney fat ...	++	++	Cottonseed oil	—	—
Maize kernel	+	+	Coconut oil...	—	—
Wheat embryo	+	+	Hardened fats	—	—
Cabbage ...	++	++			
Spinach	++	++			
Carrots	+++	+			

* Carrotene and xanthophyll and possibly other unknown pigments.

Dietary Experiments with Carrotene.

We first directed our attention to carrots, as being a foodstuff rich in the lipochrome carrotene, and we naturally ascertained first whether this root contains the fat-soluble vitamine. Although we obtained evidence that the accessory factor is present in carrots, our experiments with rats did not indicate that this vegetable is a particularly rich source of that substance. Denton and Kohman[4] have since found appreciable amounts of fat-soluble A in carrots. The drying of carrots appeared to cause a loss of the accessory substance; at any rate, a sample of commercial dried carrots was less efficient as a source of this dietary component than the fresh roots which we tested. Green vegetables, in which xanthophyll is in excess of carrotene, were found to be considerably richer in the fat-soluble factor than carrots.

The results were sufficiently conclusive to encourage us to test the pigments themselves, and accordingly pure crystalline carrotene was prepared from carrots. The first preparation obtained by the usual process was tested on young rats which had been fed on a basal diet free from the fat-soluble factor, until they began to decline in weight. As has already been reported[5] no recovery of health or renewal of growth followed this addition to the diet. In view of the labile nature both of carrotene and the fat-soluble substance, a further preparation of the pigment was made in a pure condition, great care being taken to prevent oxidation or exposure to high temperature. This specimen was also found to be without growth-promoting action.

When we tested the crude carrotene fraction, which contained other substances, such as xanthophyll and cholesterol, we observed definite evidence that the fat-soluble substance was present, although in low concentration. We were not successful in preparing crystalline xanthophyll from the crude carrotene fraction, this not being a very suitable source. A crude xanthophyll preparation which was tested gave inconclusive results, there being a slight indication of growth-promoting powers.

These results weakened somewhat our conception of the identity of the fat-soluble factor with a lipochrome pigment; nevertheless, we turned our attention to the study of certain animal oils and fats which are known to contain both lipochromes and the growth-stimulating factor.

Dietary Experiments with Unsaponifiable Fractions of Animal Fats.

The lipochromes which accompany many fats are generally supposed to be resistant to the action of alkalis, and may be detected in the unsaponifiable fraction, but certain facts indicate that the process of saponification is not without action on the pigments. A number of oils and fats rich in the fat-soluble A were hydrolysed by alkalis, by a method which eliminated as far as possible the risk of changes resulting from oxidation or exposure to high temperatures. From the saponified oils the unsaponifiable fractions were separated, and tested for the presence of lipochromes by the usual chemical tests, and for the presence of the fat-soluble vitamine by feeding experiments with rats. In this manner the unsaponifiable matter of butter-fat, cod-liver oil, liver tissue, whale oil, and shark-liver oil was prepared and tested. These fractions all gave reactions for the lipochrome pigments, but, as has been already reported,[5] they were found to be valueless as source of the accessory substance. It must, however, be remembered that the lipochromes are highly labile compounds and easily undergo decomposition during their preparation under the influence of air and light. In this respect also they resemble the fat-soluble vitamine. (See Zilva[6] and Osborne and Mendel.[7])

Possibility of Relationship between Lipochromes and Fat-soluble A.

It seems, however, justifiable to conclude from our experiments that, at any rate, the pigments present in our extracts, as well as crystalline carrotene, are not identical with fat-soluble A. In spite of these negative results, we still feel that the possibility of an intimate relationship existing between the lipochrome pigments and the fat-soluble accessory substance should be carefully considered. In this connexion it is well to bear in mind that the lipochromes exist in plants and animals in close combination with other substances. Thus it would seem that the lipochromes of flowers and fruits are present in some combination with cholesterol esters of fatty acids. (See Czapek, "Biochemie der Pflanzen," 1905.) One of us found some years ago that the lipochrome of ox-serum may be obtained in watery solution, combined with alkaline metaprotein and cholesterol esters, on coagulating the serum proteins without the addition of acids. From this combination the pigment is liberated by boiling alcohol. Further, Palmer and Eccles[1] describe the pigment carrotene existing and being transported in the blood in the form of a water-soluble complex with protein. This complex is a fairly stable one, but is readily broken down by the action of alcohol, after which the pigment is soluble in the usual fat solvents. Now McCollum, Simmonds, and Pitz have shown that fat-soluble A occurs in the embryo of certain seeds in a form which is insoluble in fat solvents, and they suggest that this form is probably a complex of the accessory factor with another cell-constituent, such as protein.[8] Whatever the nature of the complex may be, it is one which is broken down by treatment with alcohol, the fat-soluble substance being liberated in a form soluble in fat solvents.

Palmer and Kempster[9 10] have recently investigated whether or not the lipochromes are of importance to the fowl for growth, fecundity, or reproduction. From a number of observations on chickens, fed on diets supposedly free from lipochromes, they conclude that it is possible to raise fowls to maturity on rations containing the merest traces of, if not entirely free from, these pigments, and that the full-grown hens in such cases show normal fecundity. No abnormality of the lipochrome free eggs was noted.

Experimental Evidence Reviewed.

A closer examination of their experiments, however, reveals the fact that when the birds were fed solely on a diet of white corn, bleached flour, and separator milk, a diet which the authors considered practically free from lipochromes, and which would also be very deficient in fat-soluble A, they were unable to develop normally, and it was found necessary to add a ration of pig's liver before satisfactory growth was observed. Apparently the authors regard this supplement as being free from lipochrome pigments. Certain of our experiments have shown us, however, that substances resembling the lipochromes do occur in pig's liver, as well as in the livers of all species as yet examined. Consequently it is quite possible that the supplement of liver was actually providing the lacking pigment ubstance conceivably required for normal development. In fact, it is not unreasonable to interpret certain results which these American workers have obtained as evidence in support of the idea that substances closely related to the lipochromes are of mportance in nutrition. For instance, their experiments show that when a fowl is given a diet deficient in these pigment substances, she gradually oses the deposits which are present in many of her own tissues, particularly if she is laying at the time. When these reserves are nearly exhausted, as is indicated by the pallor of the shanks and beak, and a diet rich in xanthophyll is administered, the ngested pigment is all deflected to the ovaries and used for inclusion in the yolks of the eggs which are being formed, none being incorporated in the adipose or other fatty tissue as long as fecundity lasts. In fact, the authors state their belief that the fading of the normal colour of the ear lobes, beak, and shanks which occurs during fecundity is due to a deflection of the normal path of excretion of xanthophyll from those parts to the egg-yolk. It appears reasonable to argue that such deflection would not occur unless the substances were required for a definite and important function in the egg. That the eggs laid by the fowls on the supposedly lipochrome-free diet were found to be fertile is not a strong argument in support of the dispensability of the pigments, for it is recorded that the yolks of these eggs retained a certain amount of residual colour, although Palmer and Kempster do not believe this was due to carrotene or xanthophyll. Only those who have had extensive experience with feeding experiments can fully appreciate how very small are the traces of certain dietary constituents which are sufficient to provide what the animal body requires for its growth.

Particularly in the light of the recent work by Steenbock and Boutwell[11] does it appear unlikely that the association of yellow pigments with growth-promoting properties ascribed to fat-soluble A is mere coincidence.

These authors have also commented on the existence of this association in a number of types of maize, and their interesting results are given in Table II.:—

TABLE II.

—	Value as source of fat-soluble A.	Pigments.
Yellow maize	+	+
White maize...	—	—
Red maize (yellow endosperm) ...	+	+
" " (white ") ...	—	—
Potato	—	—
Yellow sweet potato	+	+

Further Experiments.

Since our own work has led us to the view that the fat-soluble A is probably not identical with either carrotene or xanthophyll as such, but that it is in some manner associated with this type of pigment, we have extended our investigations to the pigments of liver-fats. These results will be published in full at a later date, but it may be stated that we have found in liver tissue, besides carrotene and xanthophyll, a substance which gives certain reactions similar to those given by the lipochromes, and which is not identical with any known member of that class. This substance appears to be responsible for the well-known colour-test with sulphuric acid, which is extensively employed by analysts as a test for cod-liver oil. The opinion regarding this test seems to have been that it was due to an impurity derived from changes of a putrefactive nature in the livers during the preparation of the oil, and that it would not be given by a good sample prepared from the fresh organ. We believe we have sufficient evidence to say that this view is incorrect, and that the substance is a normal constituent, not only of fresh cod liver, but of all liver fats. It remains in the unsaponifiable residue of liver oils, is very prone to oxidative changes, and appears to be derived from the food. Attempts are being made to isolate the substance and to identify its character, it being of particular interest to us to ascertain whether it is another lipochrome.

Conclusion.

In summarising our results, so far obtained, it may be said that, whilst the identity of the fat-soluble accessory food factor with a known lipochrome pigment appears to be improbable, there are reasons for assuming that it is in some manner associated with that class of substances.

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BRISTOL HOSPITAL SUNDAY FUND.—Up to the present £5039 have been received as the result of the Hospital Sunday collections in Bristol, and it is practically certain that the total for 1920 will be a record amount.

TREATMENT OF BILHARZIA DISEASE WITH TARTAR EMETIC IN SOUTH AFRICA.

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THE treatment of bilharziasis in South Africa of 30 cases varying from 9 to 39 years of age, with symptoms lasting from one week to 25 years, helps to confirm the value of intravenous injections of a solution of antimonium tartrate. As far as the *destruction of the parasites themselves* are concerned this drug would appear to be equally effective in recent and in long-standing cases; whilst the effect of the drug on the parasites in the blood-stream would appear to be in no way related to the age of the patient.

The experience I have gained from carefully watching a series of cases during the last 12 months leads me to say that —1. The scalding and vesical pain that these patients complain of may be expected to disappear after the second or third intravenous injection. 2. The patient will probably remark on the disappearance of the blood from the urine within a week or ten days, though hæmaturia may be prolonged where there is a tendency to papillomatous growths. 3. Degenerating miracidia may be seen within the shells of the eggs shortly after the dose administered has reached a full grain. 4. That blackened eggs may appear after a total of only 1 1/4 gr. has been given. 5. Free swimming, dying miracidia are not uncommon in undiluted urine at the end of two weeks' treatment. 6. A cloudy condition of the urine due to phosphates is common during the second or third week, and readily responds to cystopurin. 7. The disease is usually cured when the urine has been free from living eggs for a fortnight or three weeks. 8. The presence of many dead eggs and blood cells indicates that further treatment is required. 9. The absence of living eggs for a month indicates that the female parasites are all dead. If the parasites are going to cause mischief again they are unlikely to take more than a fortnight to three weeks to recover after the administration of the drug has ceased.

Certain Cases Described.

Case 1 is an example of the occurrence of pain after a concentrated solution. G. R. R. contracted bilharzia disease at Clairwood six years ago. On Oct. 8th the urine was blood-stained and contained terminal-spined ova. He was given tartar emetic ¼ gr. intravenously. On the 10th he received ½ gr., on the 14th ¾ gr., and on the 21st 1 gr. After this last injection he complained of some pain in the shoulders lasting two days. Examination of the centrifugalised deposit from the urine on Nov. 21st showed fewer ova, half of which were black or shrivelled and the urine itself was clearer. On the 27th he reported that no blood had been seen since the 23rd. He received 1 gr. tartar emetic in 2 c cm. of distilled water. On the 30th he again complained of pain in the shoulders, lasting two days, after a second injection of 1 gr. in 2 c.cm. of water. On Nov. 5th he received 1¼ gr. tartar emetic in 5 c.cm. of distilled water without any after pains. No ova could be detected on five separate occasions after this, but one degenerated miracidium was seen just moving in the undiluted urine on the 13th. On Dec. 4th he was discharged as cured, having received 10¾ gr. of tartar emetic solution, the urine being free for over a month from all ova, except the miracidium mentioned above. In this case the solution was used on several occasions twice as strong as what I usually inject.

On Feb. 4th the patient returned complaining of acute cystitis. The urine was cloudy and contained mucous membrane cells but no ova. However ½ gr. tartar emetic was given intravenously and ¾ gr. on the following day. This latter dose was followed by a slight rigor an hour later. On the 7th 1 gr tartar emetic was given, but the urine was still free from ova, suggesting that the parasites had all been killed in November, and the cystitis was not due to any recurrence of bilharzia infection

Case 2 records vomiting in a child after injection. C. R. contracted bilharzia disease through bathing in the Umhlatazana at Clairwood two years ago. He is now aged 13. On Nov. 5th the urine was blood-stained and contained numerous terminal-spined ova On the 7th he received ¼ gr. tartar emetic intravenously. On the 10th he received ⅜ gr. and on the 12th ½ gr without ill effects. After receiving 3⅞ gr in all by the 22nd, the centrifugalised urine showed debris and three dead eggs. On three occasions this patient vomited after an intravenous injection of a full grain, which was given shortly after a light meal. On Dec 13th he was discharged as cured, having received 9½ gr of tartar emetic intravenously. Repeated microscopic examination of the centrifugalised urine showing only dead ova since Nov. 22nd and the urine remaining clear.

Case 3 records a rigor in a child following injection. H. R, aged 9, contracted bilharzia disease through bathing in the Umhlatazana at Clairwood two years ago. I have obtained numerous *Physopsis africana* from this river. On Oct. 9th the urine was very cloudy and contained numerous ova and blood cells From Nov. 5th to 14th he had four intravenous injections of tartar emetic, commencing with ⅜ gr. On the 15th the urine was clearer, this might be due to cystopurin which he was taking, but the ova were blackened from the action of antimony On the 17th he received ½ c cm. of collosol antimonium (Crookes). The temperature rose to 99·8°F. the following day, though the patient was put to bed immediately after each injection. On the 20th he received 1 c.cm. also intramuscularly and on the 25th ¾ c cm. with similar rises in temperature On the 27th and 29th he received ¾ gr. tartar emetic intravenously. On Dec. 2nd a full grain of the drug was followed by a rigor half an hour after the intravenous injection. The following day the urine was very clear and contained only a few dead ova. On the 4th, 6th, 8th, and 10th he received intravenous injections, a full grain on the 8th without bad effect. On the 13th he was discharged as cured, as five microscopic examinations of the centrifugalised urine revealed nothing but dead ova. He received 6$\frac{5}{16}$ gr. of tartar emetic intravenously and 2¼ c.cm. of collosol antimonium.

Case 4 is one in which a measly rash followed injection. M. M. contracted bilharzia disease 12 years ago from the river at Amersfoort, which is a tributary of the Vaal. He had noticed blood in the urine practically every day since then, and occasionally suffered from such acute attacks of renal colic that hypodermic injections of morphia were necessary. Micturition was always attended by a scalding sensation. Nov. 11th. Cloudy urine contains numerous terminal spined ova and numerous cells. 12th: Tartar emetic, ¼ gr. intravenously. 14th. Tartar emetic, ½ gr.; slight vomit. 16th: Tartar emetic, ¾ gr., all right, slight blister from the 12th, urine contains ova and cells. 18th: Tartic emetic, 1 gr.; slight vomit; measly rash all over; blisters along veins of arm injected Sod. sal, 8 gr., sod. bicarb., 8 gr., tr. nuc. vom., m viii., t.d.s., corrosive sublimate lotion, codeia, ½ gr. at night. 21st. Tartar emetic, 1¼ gr.; vomit and cough; skin almost normal. 23rd: Tartar emetic, 1¼ gr., one hour after codeia, ½ gr; slight vomit and cough, skin normal. 24th: Skin normal 25th: Tartar emetic, 1¼ gr., three-quarters of an hour after codeia, ½ gr.; urine clearer, does not scald 27th: Tartar emetic, 1¼ gr., half hour after codeia, ½ gr.; no cough or vomit; urine contains ova. Dec. 1st: Tartar emetic, ⅞ gr.; urine clearer than it has been for 12 years. 2nd. Urine contains a few dead ova and dead masses of cells. 3rd. Tartar emetic, 1 gr.; urine contains few dead ova and 1 dead miracidium. 5th Tartar emetic, 1½ gr., slight cough; urine contains very few black ova. 7th: Tartar emetic, 1⅛ gr.; slight vomit; urine contains 2 dead ova. 9th: Tartar emetic, 1¼ gr.; bad cough. 11th: Urine contains no ova; no colic or pyrexia noted throughout. 12th: Tartar emetic, 1 gr.; no cough; 1 dead ovum, 2 dead masses of miracidia. On Feb. 20th the patient reported that there had been no recurrence of blood in the urine.

Case 5 is an example of pyrexia and chronic cough after injection. J. B. contracted bilharzia disease from bathing in the Libode river three years ago. There had been hæmaturia ever since. He is now 10 years old. On Oct. 25th the urine, which was tinged with blood, contained numerous terminal-spined ova and shreds of mucous membrane. He had never suffered pain or colic. On the 27th he was given ♏ v. collosol antimonium intramuscularly; this dose was repeated on the 29th and 31st without ill-effects, and a ½ c.cm. was given on Nov. 3rd with only a slight rise in temperature. On the 5th he commenced intravenous injections of tartar emetic, receiving ⅛ gr. on this date and ¼ gr. on the 7th. On the 10th his temperature rose to 104° F., and was not normal until the 14th, when he received ½ gr. without ill-effect. However, for a fortnight he was troubled with cough, which seemed to be aggravated by the intravenous injections. On the 15th the urine was clear for the first time for about three years and the ova were mostly black. On 12 subsequent days the centrifugalised urine was seen to contain only dead ova, most of which were jet black. On the 20th he received 1 c.cm. collosol antimonium. His temperature rose to 100·4° the following day. On Dec. 18th he was discharged as cured, having received 8½ gr. of tartar emetic intravenously and 2·5 c.cm. of collosol antimonium. On Jan. 21st the father, who is a medical man, reported that there had been no recurrence of hæmaturia, and the microscopic examination of the centrifugalised deposit of his clear urine revealed an entire absence of ova.

In Case 6 the ova were blackened by collosol. H. B., aged 12, contracted bilharzia disease from the Libode river at Libode three years ago, and noticed blood in the urine every day since then. For the last two years he has had occasional attacks of renal colic, usually in the right side, but once in the left. These attacks were bad enough to require hypodermic injections of morphia about once in three months, otherwise he was free from pain. On Oct. 25th the urine was blood stained and contained terminal-spined ova and shreds of mucous membrane. On the 27th ♏ v. of collosol antimonium (Crookes) were injected into the right deltoid muscle. This dose was repeated on the 31st and Nov. 4th. The first dose gave rise to a temperature of 103·5° F., which rose after the second to 101·5°. The third dose was not associated with any rise in temperature. On Nov. 1st the slightly blood-stained urine contained many blackened ova.

In view of the presence of *B. coli* in the urine, cystopurin tablets were given daily, commencing with half a tablet dissolved in water t.d.s. On Nov. 6th intravenous injections of tartar emetic were commenced, ⅛ gr. was given on this date and ¼ gr. on the 7th. There was a slight bronchial cough for the next week or ten days. On the 22nd the patient had a severe attack of renal colic, which necessitated hypodermic injections of morphia ⅛ gr. and later ¼ gr. X ray examination showed no calculus. On the 25th the urine contained numerous phosphates, crystals, leucocytes, and one living miracidium inside a shell in the undiluted specimen. This was the last living ovum to be detected in the urine; from that time most of the ova were blackened. After 1 gr. of tartar emetic solution intravenously on Dec. 2nd the patient had some difficulty in breathing and slight cough for about half an hour. On the 13th ♏ x. of collosol antimonium were given intramuscularly; the temperature rose to 102° F. the following day. On the 18th the patient was discharged as cured, having received 8½ gr. of tartar emetic and ♏ xxv. of collosol antimonium (Crookes). On Jan. 21st the urine was again examined for ova, though there had been no recurrence of his symptoms. Three dead ova were found, one of which was blackened.

Case 7 records headache following injections. J. W., aged 16, had suffered from slight hæmaturia and occasional pains in the back for five years since bathing in the Umhlatazana at Escombe, Natal. He was pale, but there was no tenderness of the internal organs. On Nov. 24th, 1919, the urine was cloudy and the centrifugalised deposit contained shreds of mucous membrane, blood cells, and terminal-spined ova. On the 26th he was given ¼ gr. tartar emetic in 1 c.cm. of distilled water. The skin was sterilised by spirit vini rect., and all the injections were given in the same vein of the right anticubital space. There was no local reaction or general symptoms throughout the treatment except headache. The injection of ½ gr. on the 27th was followed by rather severe headache, which lasted 24 hours. This was relieved by a sod. sal. mixture. On Dec. 1st he said he thought the urine was clearer. He had had ¾ gr. on Nov. 29th, and received a full grain on Dec. 1st. On the 3rd he received 1¼ gr. without ill-effect, a grain on the 5th, and 1¼ gr. on the 8th. On this occasion he felt a slight irritable feeling in the throat, but had no cough or retching. The urine contained several blackened ova and two living ones. These were the last to be seen, and the injections no longer caused headache. On the 13th he said there was no sign of any blood, and the urine was free from ova on this date and the 19th. In all he received 10¼ gr. of tartar emetic. On Jan. 6th the patient still remained free from symptoms, and the clear urine contained only two dead brown eggs.

Case 8 was complicated by "gravel." On Jan. 13th, 1920, A. S., aged 39, reported to me that he had contracted bilharzia disease at Bozana, a tributary of the Umvoti, when 14 years of age. He had noticed a distinct itching of the skin whenever he bathed there. For some years he had had attacks of gravel every four or five months, but this had been relieved since he had undergone treatment by Dr. W. A. Peverley, of Malvern. Eighteen months ago, however, he had had another bad attack of gravel and had suffered on and off since then. He was still complaining of pain in the left side, and, as the typical terminal-spined eggs were found in the urine, he was given ⅜ gr. tartar emetic intravenously at my consulting-room. The following day he received ¾ gr., and was recommended to take sodium phosphate effervescent. One blackened egg was found in the urine on Jan. 19th, after he had been given a total of 3¼ gr. On the 24th 1½ gr. was given without ill-effect. The urine was cloudy with phosphates on the 23rd; but no ova, dead or alive, were detected after Jan. 21st, except on the 31st, when four blackened eggs were seen. On Feb. 2nd he was given his last injection of 1 gr. and was discharged from further treatment. He had received a total of 10⅞ gr. tartar emetic intravenously, and 1 c.cm. collosol manganese intramuscularly to clear up the urinary tract. On the 14th the urine was found to be still free from eggs, but he still had a tendency to gravel formation.

Case 9 showed a tendency to cough after injection. T. G. contracted bilharzia disease through bathing in the Orange River at Upington, Northern C.P., during the recent rebellion. He was treated for it whilst on further service in German West Africa; but had had continuous burning sensation whilst passing his water during the last three years, and this was always worse during the hotter season of the year. He commenced treatment with ¼ gr. of tartar emetic on Jan. 26th, when the blood-stained urine was found to contain numerous terminal-spined eggs. On the 28th, when he returned for his third injection, he stated that the burning sensation had gone. On the 30th the urine was getting clearer and contained fewer eggs. On Feb. 2nd he stated that the urine was decidedly clearer. After 1 gr. tartar emetic on the 5th he was troubled with an irritating cough lasting about three minutes after the injection; this was noticed on five subsequent occasions. Black and dead eggs were discovered in the urine on the 7th, but no eggs after that. On the 11th he stated that there was now no sign of blood and, up to the 19th, the centrifugalised urine showed entire absence of eggs. He has now received 11¼ gr. of tartar emetic, but the injections are being continued.

Remarks on Treatment.

In a warmer climate it would seem that one is justified in treating the majority of bilharzia cases as out-patients, provided they are warned against the very serious risk of contracting a "cold" after an injection, and provided they are in easy reach should any untoward symptoms, such as throbbing in the head, vomiting, and faintness occur. My experience would seem to show further that: 1. It is unnecessary for adults to remain in bed, but that they should stay quietly indoors for the rest of the day following an intravenous injection of antimonium tartrate. Children should be kept in bed for the rest of the day. 2. A rise in temperature is most uncommon, and can usually be explained by local sepsis or exposure to cold shortly after an injection. 3. Many patients show no ill-effects whatever; whilst in others there is a risk of cough, vomiting, tightness in the chest, or syncope immediately following the injection. 4. In codeia we have a valuable means of counteracting these possible reactions to the drug; but it is seldom found to be necessary if only moderate doses have been given. 5. A dose of 1½ gr. is sufficiently large to administer to any patient, and may be repeated every second or third day. 6. ½ gr. is a sufficiently large dose to commence with, and a tolerance, even for this amount of the drug, should sometimes be acquired by previous medication with small intramuscular doses of collosol antimonium. 7. The injections may be given daily until ¾ gr. is tolerated, and then on alternate days or every third day. 8. Where doses not exceeding 1½ gr. are given regularly for three weeks to a month a total of 12 gr. tartar emetic is generally sufficient to effect a cure of bilharzia disease. 9. A mixture of sodium salicylate and bicarbonate of soda is useful where the drug would seem to be responsible for headache, generalised pains, rise in temperature, or skin rashes. 10. Attacks of renal colic may occur at any stage of the treatment in patients who have previously suffered therefrom; but, in the majority of cases, these attacks become less frequent as the treatment continues, and in many disappear entirely when the parasites are dead. 11. Although the male worms are more common than the females, the examination of the eggs in the centrifugalised deposit of the urine passed by the patient affords a very fair indication of the effect that the antimony is having on the eradication of the parasites from the system.

Durban, Natal

A NOTE ON THE VALUE OF

BLOOD TRANSFUSION BEFORE OPERATION

IN SEVERE SECONDARY ANÆMIAS.[1]

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THE value of blood transfusion in cases of sudden and profuse hæmorrhage from the uterus has already been demonstrated by Dr. Russell Andrews and Mr. Gordon Luker. The case here recorded directs attention to its value in the more gradually produced anæmia of uterine fibromyomata.

M. M., aged 45, was admitted into St. Bartholomew's Hospital on May 11th, 1919. She had been married for 18 years, but had never been pregnant. Menstruation commenced at the age of 13, and was regular and normal in amount until November, 1918. From November, 1918, to April, 1919, there was amenorrhœa. Early in April vaginal hæmorrhage commenced and soon became profuse; she lost a considerable quantity of blood every day and passed large clots. Towards the end of April she commenced to suffer severe and constant pain over the left iliac fossa. The pain and bleeding continued until her admission into hospital on May 11th.

On admission she was very anæmic, restless, and breathless; the pulse was 130 of poor volume, the temperature 101° F., the tongue was dry and furred. There was incontinence of both urine and fæces and frequent vomiting. The urine contained a cloud of albumen but no renal elements.

The blood count was:—

Red cells	1,670,000 per c.mm.		Hæmoglobin	22.5 per cent.
White "	52,000 "		Colour index	0.7

The patient was so breathless that great care was necessary in moving her, and she fainted during examination. The breasts were inactive; a hard tumour was felt rising from the pelvis and reaching nearly to the costal margin, the greater part of the tumour was insensitive but one portion, situated above the right Poupart's ligament, was tender. The vagina contained blood-clot, the cervix was high up near the symphysis pubis, and behind it was a rounded cystic tumour.

From the 11th to the 17th the patient's condition gradually became worse, but I was afraid to remove the tumour. The temperature varied between 102° and 104°; the pulse between 120 and 140, vomiting was frequent and the incontinence of urine and fæces continued. On the 17th the red blood cells had fallen to 845,000 per c.mm., and the white cells had risen to 65,000 per c.mm. A differential count showed:—

Polymorphs	85 per cent	Eosinophiles	1¾ per cent
Lymphocytes	8¼ "	Basophiles	1½ "
Large mononuclears	3½ "		

On this day it was decided to transfuse the patient. The clerk of the case, Mr. Clayre, generously offered to give the blood, and both donor and recipient were found to belong to Group IV. 600 c.cm. of citrated blood was transfused into the median basilic vein. The effect was almost magical. Three days later the temperature was normal, the vomiting had ceased, she had regained control over the bladder and rectum, the red cells had risen to 3,485,000, and the white cells had fallen to 29,000 per c.mm.

I operated on June 5th. The abdominal tumour proved to be the uterus enlarged by the presence of fibro myomata showing hyaline and cystic degeneration. The tumour felt in the pelvis was a pseudomucinous cyst adenoma of the ovary. I performed subtotal hysterectomy with removal of the ovaries and tubes. Arrangements were made for again transfusing the patient during the course of the operation, but the amount of blood lost was so small that I did not consider it necessary. The patient made an uninterrupted recovery and left the hospital quite well at the end of three weeks. On the day of her discharge the red blood cells numbered 4,250,000 and the white cells 10,400.

Remarks.

I have recorded this case because it involves an important principle, and I believe the treatment adopted will enable us to save lives which would otherwise be lost. It is my intention in future to transfuse all patients in whom the anæmia is severe before operating for fibro-myomata. I believe that by this means I shall diminish the risk of the operation, lessen the liability to thrombosis, and shorten the period of convalescence. I propose also, when the patient is very anæmic, to adopt this procedure in cases of carcinoma of the cervix before performing Wertheim's operation. I have already done this in one instance with a striking improvement in the condition of the patient.

I suggest further that blood transfusion should be performed before delivery in cases of severe ante-partum hæmorrhage, and during the last few months that I had charge of the lying-in ward at St. Bartholomew's Hospital the blood of the students working in the ward was tested to ascertain their groups as possible donors.

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[1] A paper read at a meeting of the Section of Obstetrics and Gynæcology of the Royal Society of Medicine on April 8th.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF MEDICINE.

NON-NEPHRITIC ALBUMINURIA.

A MEETING of this section of the Royal Society of Medicine was held on March 23rd, Dr. A. F. VOELCKER, the President, being in the chair.

Dr. R. L. MACKENZIE WALLIS read a paper entitled "Non-Nephritic Albuminuria." The term non-nephritic albuminuria was adopted to include all those forms of proteinuria where there was no demonstrable organic disease of the kidneys. The group included physiological albuminuria, transient albuminuria, intermittent albuminuria, the various types of functional albuminuria, orthostatic, cyclic, adolescent, &c., and a new group designated "leaky" kidneys. The chief object of the paper was to bring forward a definite group of cases which presented features akin to those found in the various forms of functional albuminuria but sufficient to warrant further discussion. In view of the results obtained in such cases, the term "leaky" kidneys had been devised, and, although not by any means a satisfactory term, it nevertheless conveyed the true significance of the condition. The question arose as to the means at our disposal for differentiating these various forms of non-nephritic albuminuria from those due to true organic disease of the kidneys. The chief protein present in the urine in nephritis was albumin, although in the blood there were both serum-albumin and serum-globulin. Further, the globulin in the serum occurred in two distinct fractions—viz., euglobulin and pseudoglobulin, the former presenting all the chief characters usually ascribed to globulin. Globulin occurred in the urine in association with albumin, but in different proportions. Thus in chronic nephritis the amount of globulin was low, but it generally increased in the later stages of the disease. The chief point was that in all types of functional albuminuria the globulin was increased in amount, and it was almost invariably of the type known as euglobulin. In "leaky" kidneys the greater part of the protein in the urine was in the form of globulin similar to euglobulin, but having associated with it an excess of lipoids, fatty acids, &c. The differentiation of these various types was based upon the following urinary tests: the production of a precipitate by the addition of dilute acetic acid in the cold, dialysis test, distilled-water test of Roberts, half saturation with ammonium sulphate, the ratio of albumin to globulin, the urinary diastase content, and microscopical examination of the sediment. The following table gave the results obtained in the various conditions:—

—	Acetic acid in the cold.	Dialysis.	Half satn. ammon. sulphate.	Ratio of albumin to globulin.	Diastase in units.
Functional albuminuria	+	+	+	2 : 1	10-22·2
Leaky kidneys ...	+	+	+	1 : 2 to 6	10-33·3
Chronic nephritis—					
Mild	0	0	0	10 : 1	10
Moderately severe	0	0	0	6 : 1	5
Severe	0	0	Slight +	5 : 1	Less than 5
Toxic nephritis ...	0	0	+ or 0	6 : 1	50-500

The globulin which is precipitated by acetic acid in the cold is euglobulin, and this test almost invariably gave positive indications in all the cases of functional albuminuria examined. This euglobulin, being insoluble in water, is also precipitated by dialysis, and gives the characteristic smoke rings when the urine is dropped into a cylinder of distilled water for the same reasons (Roberts's test). The globulin met with in the urine of the leaky kidney cases behaved in the same way, but when submitted to careful analysis was found to have lipoids and fatty acids associated with it in varying amounts. Since these associated lipoids could be extracted from euglobulin as well, the differences observed were merely differences in the degree of absorbed lipoids. This was well illustrated by the speaker's work on milky pseudo-chylous ascitic fluids. The cases about to be narrated by Dr. Tyson appeared to belong to the group of leaky kidneys, the urine of one case showing all the characters described above, and the globulin isolated containing fatty acids and lipoids. In three cases of globulinuria associated with syphilis the same changes had been observed—viz., the association of the globulin in the urine with lipoids. The maximum effect of this association was to be found in the case about to be described by Dr. Batty Shaw. Here true lecithin-globulin was isolated and the amount present was sufficient to give an opalescent appearance to the urine.

The occurrence of euglobulin or lipoid globulin in the urine was of considerable significance. Not only was it an indication of non-nephritic albuminuria, but the very simplicity of the tests for its presence in urine warranted an extended investigation of all cases of albuminuria. Further, the value of the tests as an aid to prognosis was borne out by Dr. Tyson's and Dr. Batty Shaw's cases. A case described by Bramwell and Paton in 1892 would appear to belong to the same group of "leaky" kidneys and was of particular interest in that at the autopsy no macroscopical or microscopical changes could be detected in the kidneys. As to the significance of this lipoid globulin it was at present impossible to make a definite statement. The compound had been found in all pseudo-chylous effusions which he had had the opportunity of examining. Further, in severe cases of nephritis the serum, as first observed by Bright, might become milky. The milkiness was due to the same lipoid globulin, at least in all cases of this nature which had come under the speaker's own observation. Now this same protein had been isolated from the urine in a certain group of cases which for convenience had been grouped together under the term "leaky" kidneys. This protein, or rather protein-complex, was obviously foreign to the body, and it would appear that under certain conditions it escaped through the kidneys. In doing so it apparently did no material damage to the renal epithelium, as patients continued to pass large quantities of it for years without showing any obvious signs of organic disease. The difference between this condition and functional albuminuria was one of degree, the same type of protein being present in the urine in both conditions; but there was more associated lipoid and usually much larger quantities of globulin were passed in leaky kidney cases. The hope was expressed that the subject of globulinuria would receive attention, and that the tests would be applied to every urine where albumin had been detected, especially where no obvious cause for its presence had been determined. The above tests proved far more reliable than merely testing the urine for albumin, or than assessing the doubtful significance of certain types of casts in determining the nature of the case.

Dr. H. BATTY SHAW reported on a case of

An Unusual Form of Turbid Urine due to the Presence of Lecithin-Globulin.

The patient, a young man of 37, had suffered from what appeared to be albuminuria for 18 months, and for the first half of this period was diffusely dropsical. Casts of a fatty character were found in his urine, so that the case appeared to be one of chronic parenchymatous nephritis. The patient had suffered from syphilis eight or nine years previously; but the nephritis was probably not due to this infection because the Wassermann test was always negative. The urine presented two special features which were of interest to the clinician. It was uniformly turbid on several occasions, and the turbidity was not due to micro-organisms; further, the usual tests for albumin produced a most bulky precipitate which appeared to be supported in a gelatinous matrix. These two unusual features were elucidated by Dr. Mackenzie Wallis, who showed that the protein present was globulin and not albumin, and that the turbidity of the urine was due to the inability of the urine to maintain in solution the large amount of the complex which was present—namely, lecithin globulin.

This case differed from the cases described by Dr. Mackenzie Wallis in that the globulin was present not in a case of functional disorder, but in a case which appeared, clinically at least, to be one of chronic parenchymatous nephritis. It was of further interest because it was the first case described in which turbidity of urine was due to the presence of lecithin globulin, a complex which, as Dr. Mackenzie Wallis had shown elsewhere, is responsible for the turbidity and milky-like appearance met with in chyliform or pseudo-chylous ascitic or pleural effusions.

Report on Three Cases.

Dr. W. J. **TYSON** reported three cases. Case 1 was that of a man, aged 70, whose urine had been tested first in 1905 and frequently up to the time of his death in 1914. Albumin had always been present, but the quantity had varied from a slight amount to absolute solidity. It increased with any feverish cold. A very careful examination had been made in Switzerland in 1907, when the report stated that the urine was acid, of specific gravity 1007, without sugar or casts, but containing much albumin. He never had signs or symptoms of Bright's disease, no œdema or dropsy, no increase of pulse tension, no eye troubles. Case 2 was that of a man aged 76, who for 17 years had had albuminuria varying from enough to cause solidity on boiling to 1/10 by Esbach's method. His pulse tension was not high. He was liable to giddy attacks and transient aphasia. Case 3 was that of a woman aged 70. When first seen in 1911 she was insensible and pulseless, and the urine solidified on boiling. Within two days the patient became sensible, the albumin disappeared, and she became otherwise normal. There was no further evidence of Bright's disease. He had seen no other cases similar to the above. The enormous amount of albumin present at times, with practically an absence of it at other times, and with none of the ordinary symptoms or signs of Bright's disease, seemed to warrant the placing of these cases in a class by themselves. These people lived for a long time and carried on their life and duties as usual. He thought that the passage of albumin with or without hyaline and finely granular casts was a comparatively common condition, especially in those over 50 years of age, and was of little or no practical importance. That people reaching middle life had often been rendered miserable by the finding of albumin there was no doubt.

Sir **NESTOR TIRARD** said that Dr. Mackenzie Wallis's work constituted a distinct advance. He asked what was the cause of death in Dr. Tyson's first case, and on learning that it was from double pneumonia, inquired whether the patient had previously undergone salvarsan treatment. In certain cases recorded by Byrom Bramwell, in which salvarsan had been employed in the treatment of anæmia, death from pneumonia had taken place. Hyaline casts he regarded as of very little importance. Centrifugalised fresh urine might show hyaline casts, but they might disappear if the urine stood for some hours; he believed that they became dissolved. He expressed himself as still unrepentant, as an examiner for life assurance, of advising extra premiums in cases with albuminuria, in the present state of our knowledge.

Dr. O. **LEYTON** recorded a case of a man, aged 35, whose urine when he first examined him became solid on boiling. Eighteen months later the urine still became solid and serum albumin was in excess. The blood pressure was not raised and there were no ocular changes. *B. coli communis* was present in the urine. Some years before he had suffered from gonorrhœa, the urine had not cleared after this and he had been in the habit of taking hexamine freely. Ten years later his prostate was removed, but the kidneys were still efficient, and the operation was performed without difficulty. He was now 90 years old. There had been recognised albuminuria for 14 years and he was still healthy. In cases of postural albuminuria calcium lactate had appeared to diminish the albumin.

Dr. J. H. **THURSFIELD** said that the patients with "albuminuria" who were particularly interesting were those who were rejected for life assurance, or whose premiums were heavily loaded. There were such patients without nephritis and without any tendency to it. The majority of these were passing lecithin globulin. There were no casts and no other symptoms of nephritis, with the exception that a few had œdema of the feet. The œdema he regarded not as true renal œdema, but as being in the same category as similar œdema met with in orthostatic albuminuria. In orthostatic albuminuria in children the abnormal protein passed was almost entirely or wholly serum globulin, and these children occasionally had œdema of the feet. It was the duty of insurance medical officers, when confronted with albuminuria without signs of Bright's disease, to see whether it was globulin which was present, for in that case the candidates could be insured as first-class lives with absolute safety.

Dr. R. **HINGSTON FOX** said that the insurance officers did not hold so restricted or ignorant views as seemed to be implied. The question of albuminuria without nephritis had been muddled by a multiplicity of terms. He was familiar with cases of harmless albuminuria. Typically they were cases of rapidly growing young men, pale, suffering often from headaches, easily flushing, and with readily elicited "tache." In such cases calcium lactate almost always removed the albumin temporarily if given in doses of a drachm on two successive evenings. Insurance officers passed these cases with little modification. Whether the condition was altogether free from ill effects was still a matter of opinion, and from the point of view of insurance it was therefore justifiable to decline to treat the individuals as first-class lives.

Dr. W. P. S. **BRANSON** said that insurance medical officers did not treat candidates with "albuminuria" in so unreasonable a way as some seemed to suppose. The difficult case was that of the man of from 35–45 who came for the first time with albuminuria.

Dr. **MACKENZIE WALLIS**, in his reply, said that he knew of three cases of syphilis in which globulinuria persisted after salvarsan treatment. Cystoscopic examination in cases of orthostatic albuminuria had shown that no urine emerged from the left ureter when the patient was standing, which suggested that the albuminuria was due to pressure on the left renal vein.

SECTION OF OBSTETRICS AND GYNÆCOLOGY.

EXHIBITION OF CASES AND SPECIMENS.

A MEETING of this section of the Royal Society of Medicine was held on April 8th, Mr. J. D. **MALCOLM**, the President, being in the chair.

Douche-nozzle Removed from the Female Bladder.

Mr. T. G. **STEVENS** showed a specimen of a gum-elastic douche nozzle, the third which he had had occasion to remove from the female bladder. It had been in the bladder nearly three months and a severe cystitis had developed. The bladder was incised per vaginam and the nozzle found to be so encrusted with phosphate crystals as to require cutting in half before removal. The bladder was sewn up at once with catgut, the vagina having been separated ¾ in. all round the opening and sutured separately. A self-retaining catheter was inserted and removed on the tenth day, when the urine was almost free from pus and the incision was apparently healed. A few days later there was a transient doubtful leakage, but the patient was discharged three weeks after the operation, able to hold urine all night without inconvenience. The severe cystitis did not prevent the healing of the incision in the bladder.

Dr. **AMAND ROUTH** said that the vaginal route was undoubtedly the best for removing such a foreign body, but his practice was to leave the bladder open.—Dr. **HERBERT SPENCER** suggested that the specimen might have been cut in half and removed through the urethra by means of a Kelly's tube.—Dr. A. **LAPTHORN SMITH** agreed with Mr. Stevens's method, except that he preferred to make the incision in the vagina ½ in. to the right of the middle line, and that in the bladder ½ in. to the left, to avoid leakage.—Mr. STEVENS in reply said that the difficulties encountered in the previous cases in trying to remove the nozzle per urethram had prevented him from repeating the attempt. As to sewing up the bladder, he had left his first case open and it had not healed readily, so he sewed up the two subsequent cases with complete success.

Cystic Embryoma of Ovary.

Mr. J. D. BARRIS showed a specimen of Cystic Embryoma removed from a nullipara, married one year previously. There was a history of two months' abdominal pain; menstruation normal. A pseudo-mucinous ovarian cyst was removed from the right side. The specimen shown consisted of the left ovary, opened to show an upper cystic and a lower solid unaffected portion, and was unusual in that it showed a *pedunculated* dermoid situated within a cyst cavity lined by old blood clot.

Combined Placenta Prævia and Accidental Hæmorrhage.

Dr. EARDLEY HOLLAND gave a short account of a case of Combined Placenta Prævia and Accidental Hæmorrhage. The patient was a primigravida of 28. When first examined, after she had bled moderately for about four hours, the placenta was felt overlapping a cervix dilated to the size of two fingers. She appeared more anæmic than was warranted by the amount of blood lost externally. The uterus was hard and irritable, and the urine contained a dense cloud of albumin. A leg was brought down and continuous weight-traction made upon it. She soon delivered herself of a dead fœtus. The placenta, which followed almost immediately, was accompanied by a large dark clot of about 14 oz. of blood. Examination of the placenta revealed a typical, sharply localised depressed area in the middle of the maternal surface and occupying about one-third of its area. Blood clot was still occupying parts of this depressed area, and closer inspection revealed some adherent laminæ of greater age. The opening in the bag of membranes was at the margin of the placenta. Dr. Holland said that this was a true case of placenta prævia combined with toxæmic retroplacental hæmorrhage. There was no inherent reason why such a combination should not occur. As the frequency of placenta prævia was given as 1 in 1000 and that of accidental hæmorrhage as about 1 in 500, by the laws of chance the combination should occur about once in every half-million cases of placenta prævia.

Infected Fibromyoma of the Uterus.

Dr. HOLLAND then showed a specimen of an infected fibromyoma of the puerperal uterus removed by hysterectomy. The patient was admitted into the London Hospital with all the signs of an acute generalised peritoneal infection; a tender, hard tumour was felt rising above the pelvis, the size and shape of a uterine pregnancy of 24 weeks' duration. She had been delivered of a dead premature fœtus three weeks previously; the placenta had been removed manually three days after labour. Immediately after admission the uterus was removed by subtotal hysterectomy; the peritoneal cavity was drained through the vagina and through the abdominal wound. The patient died in 36 hours. The whole of the anterior wall of the uterus was occupied by a single, spherical, necrobiotic fibroid, 15 cm. in diameter. The particular interest in the specimen lay in the fact that there were two perforations of the capsule of the fibroid on its anterior peritoneal wall, and one perforation through the posterior wall of the capsule into the infected uterine cavity. Between these perforations was a continuous purulent track, lying between the fibroid and its capsule, and forming a path of infection from the uterine to the general peritoneal cavity. The perforations were, no doubt, due to acute necrosis from a virulent infection acting on a capsule rendered tense by the rapid swelling of the fibromyoma it contained.

Extensive Fatty Change in Fibromyomata.

Dr. HERBERT WILLIAMSON and Dr. R. St. L. BROCKMAN submitted a short communication on two specimens, one showing a Fibro-myo-lipoma of the Uterus, and the other Extensive Fatty Degeneration of Uterine Fibromyomata. The first specimen was from the museum of St. Bartholomew's Hospital, and showed an ovoid, encapsuled tumour composed of fat, situated in the interior of the uterine fibromyoma. Microscopical sections of the tumour showed that it was a true lipoma, and that the fat was contained within typical fat cells. The authors described six similar tumours of which descriptions had been published, and referred also to another specimen in the museum of the Royal College of Surgeons of England. They discussed the origin of such tumours, and preferred the term fibro-myo-lipoma to the terms lipomatosis and fatty metamorphosis, inasmuch as it involves no theory of origin. They saw no difficulty in accepting the view that these tumours arose from the metamorphosis of fibrous tissue or muscle cells of a fibromyoma, since such a metamorphosis had been proved in the case of sarcoma cells, but as no transition forms had yet been demonstrated the matter could not be regarded as proved. They drew attention to the fact that, with one exception, all the tumours were removed from patients over 50 years of age, having given rise to bleeding after the menopause. The second specimen was shown as a contrast; it consisted of a transverse section through a mass of uterine fibromyomata. In the recent state these appeared to consist of yellow fat, and oil globules could be scraped from the surface. The sections showed that the presence of fat was due to extensive fatty degeneration, and that the fat was not contained within typical signet-ring cells, as in the specimen first exhibited.

Dr. CUTHBERT LOCKYER said that the question for decision was whether the condition in these cases was a degenerative change or a neoplasm. The familiar fatty degenerations of fibroid, whether red, white, or yellow, were of a granular lipoid nature, in no way resembling the sunset-coloured signet-ring shaped cells described by Dr. Williamson and Dr. Brockman, and also found in the speaker's own case. He had eliminated the possibility of a neoplasm in his case, and therefore objected to the nomenclature advocated by the authors. He considered that the change affected the muscle rather than the fibrous tissue fibres, as he had traced globules running in the direction of the muscle fibres and could distinguish nuclei in them.—Mr. STEVENS thought that the incomplete encapsulation and the strands of fibromuscular tissue running into the fatty mass were points against a neoplastic origin. A lipoma consisted of fibrous tissue and fat only, while myo-lipomata were unknown.

A Case of a Pregnant Woman with High Ammonia Coefficient.

Lady BARRETT described a case of a pregnant woman with a high ammonia coefficient and persistent vomiting, who recovered and gave birth to a normal living child at term. The patient, a munition worker aged 22, was admitted to the Royal Free Hospital with persistent frequent vomiting when about six weeks pregnant. The vomiting was accompanied by constipation and treated by dieting, with occasional success, till a month after admission it became more severe and diacetic acid appeared in the urine, which was scanty (7 oz. in 24 hours), and contained also a faint trace of albumin. The vomiting improved for two days, during which the patient had Benger's food by the mouth, but it started again and she was put on glucose saline per rectum, with the subsequent addition of albumin water and tea by the mouth. The ammonia coefficient rose to 38 and subsequently to 78, and the quantity of urine passed in 24 hours varied from 5 to 24 oz. daily. The vomiting ceased gradually, and the diet was increased in protein content in the hope that the ammonia coefficient, which still remained at 50, would decrease on a more generous intake of nitrogen. This hope was realised, and about eight weeks after admission to hospital the vomiting had practically ceased, the ammonia coefficient had fallen, and the urine excretion risen. After a slight relapse the patient's condition improved steadily, and she was discharged 12 weeks after admission. She was readmitted when 6½ months pregnant, with loss of appetite, drowsiness, and persistent vomiting. The ammonia coefficient was then only 5 to 7 and she was discharged 10 days later. She was delivered at term, after a normal labour, of a girl weighing 5 lb. 9 oz., jaundiced at birth; mother and child both did well. For nine months, during which the patient was kept under observation, the ammonia coefficient remained between 5 and 8. She then became pregnant again, about 5 months ago, and is now under observation. The ammonia coefficient remains low and the patient well. Lady Barrett suggested that the successful termination of the case, the progress of which had been watched from day to day with a view to inducing labour if necessary, indicated that the general condition, pulse, and quantity of urine passed, and the presence or disappearance of diacetic acid in the urine, were of more importance in deciding on the need for induction than a high ammonia coefficient.

The PRESIDENT congratulated Lady Barrett on her successful conduct of the case.—Dr. MACKENZIE WALLIS said that the case was very surprising. He had never come across an ammonia coefficient higher than 38. He asked whether the nitrogen in the blood, and the diastase in the urine, had been estimated. The latter sometimes remained high for a long period. He was struck by the small quantity of diacetic acid present.—Dr. T. W. EDEN described a case differing from Lady Barrett's, but also illustrating the vagaries of the ammonia coefficient. Possibly the explanation of the excellent result notwithstanding the high figure found by Lady Barrett was that it was due to the starvation following on the vomiting rather than to toxæmia.—Lady BARRETT, in reply, said that separate estimates of amino acids had not been made in the first illness. Since then the amino acids had been present in small proportions relative to the ammonia. Diacetic acid was only rarely present. Diastase had not been estimated.

The Value of Blood Transfusion before Operation in Severe Secondary Anæmia.

Dr. HERBERT WILLIAMSON contributed a Note on the Value of Blood Transfusion before Operation in Severe Secondary Anæmia, reported in full on p. 867 of our present issue.

In reply to a question by Dr. ROUTH, Dr. WILLIAMSON said he never used saline injections since the blood pressure was not increased thereby, but the saline filtered through into the tissues, causing œdema. He had had good results with 6 per cent. gum arabic in saline—though not so good as with blood—and this solution had the advantage that it could be stored and used when blood was not available.

Rupture of the Vagina during Labour.

Dr. A. C. PALMER described two cases of Rupture of Vagina during Labour, admitted to the Obstetric Department of the London Hospital. An 8-para, aged 35, was brought by her doctor, who stated that the case was one of prolonged second stage with the head delayed in the pelvis. He had extracted a child, still-born, weighing between 13 and 14 lb., after a hard pull with forceps. The perineum was torn. The placenta did not follow and since the patient continued bleeding he decided to remove it manually. Following the umbilical cord, his hand passed into the abdominal cavity, where he found and removed the placenta. The case was then brought up to hospital; P. 120, T. 98° F., abdomen very tender. The uterus was found almost completely separated from the vagina, except for a narrow bridge in the region of the left uterine artery, and a small portion of the anterior wall of the cervix close to the bladder. There was much free blood in the peritoneal cavity. The uterus was removed as rapidly as possible, and the patient made a good recovery. Dr. Palmer believed that the difficulty was due to relative pelvic contraction owing to the very large size of the child. The second case, also a multipara, was brought to hospital in a state of collapse (P. 120, T. 96·5°) by a midwife, having been in labour for 24 hours. There had been good pains for 15 hours, and since then the pains were described as tempestuous and different in character from the preceding ones. No manipulation and only one vaginal examination had been made. On the right of the fœtus was a hard tumour about the size of a fœtal head, and thought by the resident accoucheur to be possibly a fibroid. A moderate pull with forceps being unsuccessful, the child was delivered after perforation and crushing of the head by Mr. V. J. F. Lack, the resident accoucheur, who then noticed that the tumour was the contracted uterus and that the child had been lying in the abdominal cavity, whence the placenta was removed manually. At an exploratory laparotomy Dr. Palmer found a large T-shaped tear in the posterior vaginal wall, beginning at the cervico-vaginal junction and extending almost down to the vulva, and much free blood in the peritoneal cavity. The uterus was rapidly removed. The patient is now convalescent. Four easy labours had occurred in spite of well-marked general contraction of the pelvis; the fifth had required forceps; the sixth was the case described. In each case the object of the hysterectomy was the control of hæmorrhage and the removal of damaged and devitalised tissue as a prophylactic against puerperal sepsis.

Sacculation of a Gravid Bicornuate Uterus.

Mr. T. G. STEVENS described a case of Sacculation of a Gravid Bicornuate Uterus. The patient was admitted to St. Mary's Hospital in great pain, having been in labour two days. The uterus, nearly full term in size, was not contracting very powerfully and the fœtal head was at its upper part. Per vaginam the os was out of reach and a fluctuating swelling filled the upper half of the pelvis behind. Pulse 104, temperature 97° F. Three months previously an immovable swelling, then smaller, had been felt by Mr. Stevens behind the cervix; it was then diagnosed as an ovarian cyst and left, with the idea that during labour the cyst could be removed by operation and delivery then completed per vias naturales. As the cervix could not be reached it was, however decided to perform Cæsarean section and then to deal with the tumour. The fœtus having been extracted from an apparently normal uterus, this was drawn through the abdominal incision and the pelvic swelling was found to be a sacculation of the uterus itself, formed by the slightly distended posterior wall. The actual fundus was held down in the pelvis by an adhesion 1¼ in. broad by ⅛ in. thick. Further, a solid projecting mass, proving to be the enlarged, thickened, but not expanded, half of a bicornuate uterus, was found attached to the left side of the expanded anterior part of the uterus. The cervix was located as a flattened structure, hardly at all dilated, in front of and below the impregnated half of the uterus, and making an acute angle therewith. Both mother and child did well. Mr. Stevens said that sacculation of the gravid uterus was a rare condition, usually attributed to retroflexion in early pregnancy, but in this case due to the adhesion of which the cause remained obscure.

LIVERPOOL MEDICAL INSTITUTION.—A meeting of the Pathological Section of this society was held on March 18th, Dr. J. F. Gemmell, the President, in the chair.—Professor Ernest Glynn contributed a critical review of so-called "ovarian hypernephromas." He was of the opinion that such tumours were exceedingly rare if they ever did occur, and gave three reasons for his view: 1. There was only one recorded case of a cortical rest in the ovary (1913) and even this was doubtful and unconfirmed by other observers. Such rests were undoubtedly found frequently in the broad ligament. 2. Ovarian hypernephromas were never associated with hirsuties and changes in the sex characters so common in primary neoplasms of the adrenal cortex in women before the menopause. 3. There was little, if any, difference, clinically and histologically, between ovarian tumours described as "hypernephroma" and as "malignant lutein" formations respectively, yet both these tumours were apparently quite unlike true neoplasms of the adrenal cortex itself.—Dr. G. F. R. Smith read a paper on the urine after anæsthesia based on a quantitative investigation of acidosis following various types of anæsthesia. He noted the development of acidosis after ethyl chloride and ether as well as chloroform and discussed predisposing causes. He was of the opinion that warmed ether given by the open method to a patient not unduly starved before operation was the safest anæsthetic available.

Reviews and Notices of Books.

Entomology for Medical Officers.

Second edition, revised. By A. ALCOCK, C.I.E., M.B., LL.D., F.R.S., Professor of Medical Zoology in the University of London, Lecturer on Entomology (Medical) at the London School of Tropical Medicine, &c. London: Gurney and Jackson. 1920. Pp. 380. 18*s.*

ENTOMOLOGY is a subject of surpassing interest, and no branch of it is more so than that dealing with the part insects play in the spread of disease. We advise those wishing information on the subject to get a copy of Colonel Alcock's book, a second edition of which has just been published. Dedicated to Sir Patrick Manson, the founder of modern tropical medicine, the book is replete with information and pleasant to read. Take, for example, the opening paragraph, on p. 31, to the chapter on Insecta; here the author says: "It is sufficient to say that insects outnumber all other species of animals put together, that it is impossible to overestimate their natural influence and momentum, and that so far as their relation to civilised man is concerned insects have in various ways retarded his most resolute efforts to replenish the earth, and have at times and in places disputed his very dominion." So true is this that it behoves all medical practitioners, and especially those whose lot is cast in the hot parts of the earth, to have much more than a smattering of knowledge of the subject. Both medical man and layman, not specially trained as entomologists, will find all that they require in these pages.

A Primer of Tropical Hygiene.

Sixth edition. By Colonel R. J. BLACKHAM, C.B., C.M.G., Assistant Director of Medical Services. Bombay: G. Claridge and Co. 1919. Pp. 154. Rs.1.

WITH the extension of foreign and colonial trade and the opening up of the African continent the number of people who would benefit by a knowledge of tropical hygiene will be considerably increased, and we therefore welcome a new edition of Colonel Blackham's excellent primer. The fact that it has gone through five editions in as many years testifies to its popularity, and its usefulness is also emphasised by its adoption as the official handbook for the classes at the College of Ambulance for teaching Europeans the rules of health in tropical and subtropical countries. The chapters, of which there are 12, deal with ventilation, water-supply, and various aspects of personal and public hygiene.

Manual of Obstetrics.

Second edition, revised. By EDWARD P. DAVIS, A.M., M.D., F.A.C.S, Professor of Obstetrics in the Jefferson Medical College, Philadelphia. London and Philadelphia: W. B. Saunders Company. 1919. Pp. 478. 15*s.*

THE appearance of this second edition has been delayed by the war. The section dealing with the differential diagnosis of early pregnancy has been revised. Great stress is laid on Hegar's sign, but as the student is not definitely told what the author means by this sign he is not likely easily to recognise it. In the description of chorion epithelioma we are told that a layer of fœtal cells called the syncytium covers the villi, but no mention is made of Langhans' layer. There is no account of the exact pathology of hydatidiform mole; the student is told that the diagnosis is made by the rapid increase in the size of the uterus and the passage of masses of small cysts, but nothing is said of the many cases in which neither of these signs is present. The author favours ether as an anæsthetic for labour cases and is evidently not in favour of twilight sleep. A good account is given of the modern method of performing Porro's operation in cases where the uterus is infected, and it is not safe to drop the stump back into the peritoneal cavity after hysterectomy. The book is an interesting one, but it is intended for the students attending the author's lectures at the Jefferson Medical College, and the teaching differs in many particulars from that prevalent in this country.

Physiology of the Central Nervous System and Special Senses.

For the Use of Students. Third edition. By N. J. VAZIFDAR, L.M. & S., Assistant Chemical Analyser to Government of Bombay. Bombay: S. Govind and Co. 1920. With 18 illustrations. Pp. 210. Rs. 3.12.

THIS opuscule has obviously undergone considerable emendation since we reviewed it in THE LANCET, Dec. 7th, 1912, but it is still capable of improvement. In dealing with the size of nerve cells, nowhere is any definite size stated; neuro-fibrils of nerve protoplasm are not, as stated, easily demonstrated by Cajal's method. Proof-reading is defective, as shown by such mistakes as the following: Dieters, Billarger, headace, Gower's Tracts, apperture, intensitive, Danders, pulviner. There are many others. It would be difficult to recognise a Pacinian corpuscle from the description given on p. 144, or to demonstrate the blind spot from the directions on p. 187, where the asterisk and † are reversed in position. We are told that "the elasticity of the lens is best seen when it is removed from the eye of a young person; it immediately assumes a spherical form." The rods and cones do not rest on the external limiting membrane, nor is "the path of taste sensations" from gustatory cells through the "lingual nerve and then through the chorda tympani." It requires a thorough knowledge of a subject to be able to make an accurate compilation, which this can hardly be said to be; still, in its broad outlines it may prove useful for those students for whom it is written.

Medical Guide for India and Book of Prescriptions.

By Lieutenant-Colonel E. J. O'MEARA, O.B.E., F.R.C.S. Eng., D.P.H. London and Calcutta: Butterworth and Co. 1920. Pp. 722. Rs.12.

THE guide is designed as a ready reference of domestic medicine, especially for students and practitioners in India. It is a careful compilation, and should prove very useful if its employment is limited to the scope laid down in the preface. Obviously, in short paragraphs of potted medicine the teaching must be dogmatic, but the author has been careful in the avoidance of dangerous doctrines. A most interesting section deals with the indigenous drugs of India. Colonel O'Meara is convinced that the native physicians possess prescriptions which are "of great use," but any attempt to extract information is met with "courteous but absolutely evasive answers." The knowledge which is withheld should prove a stimulus to research in a not unpromising field, and the author is expecting important achievements from a committee on indigenous drugs which has been appointed in Bombay.

Electrical Treatment.

Third edition. By WILFRED HARRIS, M.D., F.R.C.P. London: Cassell and Co., Ltd. 1919. Pp. 354. 9*s.* net.

THE general plan of this edition of Dr. Harris's "Electrical Treatment" remains unchanged. As in the second edition, the major portion of the book deals with the faradic and galvanic currents—their production and the maladies which can be treated by them, particularly those of the nervous system. Considerable space is devoted to descriptions of the pathology and symptoms of some of the diseases of the nervous system. A clear account is given of the medical coil and galvanic cells and batteries. Two chapters are devoted to the sinusoidal current and its medical uses. One of these chapters contains an interesting account of dynamos and motors. The author frequently uses the term "cataphoresis" in place of ionisation. The older term should be discarded as it really means a transport of fluid from the anode towards the kathode and not the migration of ions. Although static electricity and high-frequency currents are very briefly considered and less than a page is devoted to diathermy, this book will form a useful addition to the library of the practitioner of electro-therapeutics, and will be a valuable guide in the treatment of diseases of the nervous system by simple electrical methods. It is well prepared and there is a good index.

THE LANCET.

LONDON: SATURDAY, APRIL 17, 1920.

The Future of the Hospitals.

THE voluntary hospitals, like many persons and other institutions, are feeling the pinch of the war, but their needs, as put before the public imagination, represent them as in a desperate plight, We trust our readers to take every opportunity which opens itself before them to paint a more accurate picture of the circumstances than is thus conveyed, while it is fair to ask certain critics of the voluntary system to be more certain of their ground and more specific in their statements. Before the assertion is made that the voluntary hospital system is doomed, we want to know whether it has broken down at all or whether the acknowledged pecuniary stress under which the work is being carried on is, at any rate to a large extent, an expression of the general condition of our social world—whether, in other words, we are dealing with circumstances which, however grave, should be temporary and not imply permanent failure. Our contemporary *The Hospital* protested recently against persistently pessimistic estimates of the future of voluntary hospitals, pointing out that if the voluntary system, as it existed before the war, is inadequate in the present situation, as proved by what the war has left behind it, the lesson is not that the voluntary system has broken down, but rather that it requires an added support commensurate to added needs. This was much the view put forward in these columns when we were dealing with the voluntary hospitals of the metropolis, premising that if in the metropolis the voluntary principle was not condemned it might be assumed to have reasonable chances of living elsewhere. The figures supplied in the last statement issued by King Edward's Hospital Fund for London on the present position of the London voluntary hospitals showed that for the time being an increase of little more than 10 per cent. in the annual subscriptions would meet the net deficiency; and when it is remembered that we are talking of a total annual expenditure of well over two millions it will be seen that, so far as London is in question, the voluntary system is no failure.

London, however, in matters of social administration, can never be taken as typical of the rest of the country, while those who by training, temperament, and experience are most closely wedded to the voluntary principle, admit that the time has come when a certain amount of State or municipal aid will be required, if the hospitals are to play their proper part in a world that is developing with good intentions, though often upon profoundly uncomfortable lines. Now, it seems to us to be quite impossible for anybody at the present moment to speak with exactitude as to how this aid should be supplied and in what selected directions it should be employed. The necessary knowledge is simply not before us, and those who draw deductions as to the permanent failure of the voluntary system from particular complaints emanating from certain institutions are unwisely hasty. At this juncture we want, and we are shortly going to obtain, wide and accurate information as to the real incomes, expenditures, and services of all the larger voluntary institutions; then and then only can we gauge, with truth and justice, both what is the measure of success or failure, and what are the directions in which the State or the municipality can, and should, come to the rescue. The Red Cross has already distributed large sums of money, and proposes to raise further money under a scheme of equivalently large prevision, whereby funds to hospitals will be supplied according to the merits of the institutions, the national needs which they meet, and their standards of economy and efficiency. The information thus needed at the centre is being carefully collected—and the time, patience, and energy comprised in the word "carefully" will surprise all; and when the time comes for action, the grants, donations, and pecuniary support will be offered by the Red Cross with a single eye to raising the general standard of hospital treatment and management. Supported in this way by help in the right places and at the right times, voluntary subscriptions, we are sure, will go far towards meeting the immediate case. But the Red Cross scheme will also contain suggestions whereby the hospital population may itself be diminished, by the foundation of convalescent homes among other things, and by the proper development of after-care associations, while central buying schemes are proposed whereby sporadic extravagances may be eliminated in the cost of food and nursing material. The lesson of all this seems to us to be that in such circumstances it is short-sighted to ask the public at the present juncture for more money to add more beds to particular institutions; these may not be found necessary in the particular place where it is proposed to supply them, when the need for beds is estimated under some general plan over an orderly selection of areas.

To quote a phrase once familiar in educational circles and already applied by ourselves to the present position of hospitals, the duty of the State should be, at any rate for the present, that of supplementing the voluntary hospitals, not of supplanting them; but it is necessary that those who use this argument should be able to say in what particular directions the State or county or municipal subsidy should be sought. The attempt has been to institute some parallel between what happened and is happening in education and what will happen in hospital provision. It will be remembered that the main reason for the existence of voluntary schools, when State elementary education was provided, was that the voluntary schools preserved the religious element. They were allowed to continue their work, the State taking over the responsibility of part of the maintenance, that for the buildings remaining with the foundation managers. At the present moment there are numerous voluntary schools, whose measure of independence is respected and whose work is highly valuable. Has not this position a lesson for us in respect of the voluntary hospitals, especially if we consider the case of continuation rather than elementary schools? For hospitals should not be classed as elementary institutions; they are more comparable to continuation and special schools, for only those patients should find their way to hospitals whose needs have not been already met in the ordinary routine of panel practice. If we regard the hospital population of the country as composed to some extent of defectives from physical standard, it would certainly seem logical that the State should assist along all the special lines needed to prevent and to recuperate.

Food Pigments and Accessory Food Factors.

AN interesting suggestion in regard to the nature of the fat-soluble accessory food factor is made in an article published in our present issue. The authors, Dr. O. ROSENHEIM and Dr. J. C. DRUMMOND there record the results of a number of experiments carried out with the view of ascertaining whether the accessory substance is related to, or is identical with, a member of the class of pigments which are found in association with fats. These pigments are termed lipochromes and typical examples occur in the yellow pigment of egg-yelk, butter-fat, and in vegetables, all of which are known to possess either growth-promoting or antiscorbutic or antineuritic properties, or all three. These researches gave promise of isolating the active accessory constituent, but the authors come to the somewhat disappointing, if interesting, conclusion, that, whilst the identity of the fat-soluble accessory food factor with a known lipochrome pigment appears to be improbable, there are reasons for assuming that it is in some manner associated with this group of substances. It is a remarkable fact, at all events, that the colour of body-fat, milk-fat, or egg-fat is derived from the lipochrome pigments ingested in the diet.

The normal yellow colour of butter is known to be due to carrotene,[1] a hydrocarbon with high oxygen absorption capacity, and, besides, there is present xanthophyll, similarly constituted, but with two atoms of oxygen attached. It is significant that these pigments have their origin in the grass and roots consumed by the cow, and an interesting fact is that, should the source of these pigments be cut off, as for example, by maintaining the animal on a diet of bleached hay and white corn, the butter-fat becomes progressively paler until it is practically white. Should further investigation confirm an intimate relationship between the lipochromes and the fat-soluble accessory factor, and possibly the water-soluble factors too, new questions will arise as to the bleaching of food products. Fresh evidence would then possibly be acquired of the dietetic deficiency of the white loaf, and the dyeing of milk with annatto would mean a false sense of security as regards the presence of a growth-promoting factor. The evidence so far that lipochromes are necessarily associated with important nutritive factors, though not convincing, may give a much-desired clue as to their nature and composition. It is very suggestive, at all events, as evidenced by a table presented by the authors, that the distribution of lipochromes and fat-soluble A in a number of fats runs parallel. In those cases where a negative is recorded for lipochromes, as with white fish, lard, and vegetable oils, so also is a negative recorded for fat-soluble A. That alone is remarkable, and we welcome the authors' announcement that they are pursuing the matter further. The question of pigments playing a rôle in nutrition is all the more interesting when we remember how important is the function of chlorophyll in plant life and of hæmoglobin in animal life.

In an interesting paper on a related subject, also published in our present issue, Dr. E. MELLANBY deals with the question of accessory food factors in the feeding of infants. The subject was discussed at a meeting of the Royal Society of Medicine held on Feb. 17th, and the proceedings were reported in THE LANCET of March 13th (p. 604). The article is illustrated with an interesting series of photographs of puppies fed on a rickets-producing diet, and a group of radiograms of the wrist-joint is reproduced showing when rickets did or did not occur. Coming to practical considerations, Dr. MELLANBY referred to the remarkable immunity from rickets enjoyed by Jews as against Gentiles amongst school children. It is a significant fact that the dietary of the former includes much fatty food, oil, eggs, and milk, while such food materials do not form a substantial part of the dietary of the latter. These results appear to be in complete agreement with a valuable series of biological experiments conducted in the laboratory which we have consistently recorded. The useful observations were made by Mr. WILLIAM HALL, in Leeds, as far back as 1902, when the presence of the antirachitic accessory factor in food was undreamt of. The inference (backed by a consideration of the remarkably good health of the children in the Hebrides brought up on breast-milk and a surplus of fatty foods, including fish liver) is that inferior physique in infant life depends not so much on environment as upon diet deficiency. Practical returns of this kind show us that the energetic work of our biologists is proceeding on illuminating lines.

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[1] Chemical Society Nomenclature.

The Medical Problems of Life Assurance.

We publish in our present issue an interesting and suggestive paper by Dr. T. D. Lister under the above heading, being an abstract of the presidential address delivered before the Assurance Medical Society on March 12th. The problems of assurance medicine are varied and somewhat complex, since they involve, for the most part, questions of prognosis, which are almost proverbially dangerous and difficult in regard to individual cases. At the same time, as Dr. Lister points out, there is some safeguard to the assurance medical officer at the head office in the fact that he has rather to place "lives" in classes than to insure individuals. Medico-actuarial calculations afford statistics of real value in prognosis, and they have perhaps not received the general attention they deserve. Collective investigation of assured lives and later, if it be possible, of declined lives would probably afford most valuable data to medicine in general as well as to assurance medical officers. Dr. Lister's rather happy illustration of "vital trajectories" is an idea which might be developed with very good results.

It is of interest to note that one of the problems to which Dr. Lister referred has been considered recently by the Section of Medicine of the Royal Society of Medicine—viz., that of Non-nephritic Albuminuria; and we publish on p. 868 an abstract of the paper on this subject by Dr. Mackenzie Wallis and of the discussion which followed. We can commend the perusal of this paper and discussion to our readers, especially those who are concerned in the examination of candidates for life assurance. It would appear that in non-nephritic cases the chief protein in the urine is euglobulin often in combination with lipoids. It is of special interest to note that the tests for the recognition of this substance and its differentiation from albumin are simple, easy of employment, and do not require much time for their application. From the discussion, at which some assurance medical officers were present, it is evident that there is no uniformity of opinion or practice in dealing with cases of albuminuria in candidates for life assurance. We believe the usual custom is to postpone the candidate for further investigation of the urine and to accept the proposal, with or without some slight loading, if the condition is of the nature of functional or cyclical albuminuria. Further research on the lines set out by Dr. Wallis appears likely to simplify the problem for the examiner by affording an easy method of distinguishing the "albuminurias" of organic origin from those of functional nature.

A further aspect of life assurance medicine was raised in a recent paper by Dr. R. T. Williamson, dealing with the discovery of glucose in the urine of candidates for assurance. He gave some valuable suggestions for dealing with this class of case, and we feel that his suggestion that in such cases the examiner should be permitted to communicate the fact to the proposer is one well worth considering. We believe in practice this is frequently done, although the general rule is that the examiner should not communicate any opinions as to his examination to the proposer. This question and similar problems of the relation of the medical examiner to the proposer have been recently debated in our columns, and offer a useful subject for discussion at the Assurance Medical Society.

Annotations.

"Ne quid nimis."

THE NEW ORLEANS SESSION OF THE AMERICAN MEDICAL ASSOCIATION.

After an interval of 17 years the American Medical Association is again holding its annual gathering at New Orleans, with 435,000 inhabitants, the southernmost centre of the great constituency. Fifty-three constituent associations send their representatives to this gathering, the numbers varying from 11 for New York and eight for Illinois down to one each for the smaller States. The 15 scientific Sections of the Association send one delegate each, as do also the medical services of the Army and Navy and the Public Health Service. The House of Delegates meets on Monday, April 26th, the general meeting of the Scientific Assembly on the evening of Tuesday, and the Sections from the following Wednesday to Friday. A number of foreign visitors will be present, including, from this country, Sir Humphry Rolleston, who is announced to give the opening address at one of the sessions of the Section of Medicine, Mr. H. J. Waring, Dr. Norman Walker, and Dr. A. H. Freeland Barbour, who contributes a lantern-demonstration on the sectional anatomy of labour. Professor Victor Morax, of Paris, is to address the Section of Ophthalmology on the extraction of cataract in glaucoma. Accredited physicians from foreign countries are registered at the session as "invited guests" and enjoy all the privileges of membership. These sessional meetings afford great educational opportunities. This year's delegates will have the opportunity of studying the sanitary revolution which has taken place in the "Crescent City" since 1903. Lying with the prodigious Mississippi at its front and Lake Pontchartrain at its back, New Orleans is, to the extent of one-third at least, at or below the mean level of the lake with another third or so below high-tide level. Prior to 1900 the soil of the city was saturated practically to the surface, and up to 1908 there were no sewers. A complete drainage system, carried out at a cost of 32 million dollars, has now been completed, by which the sewage is pumped into the Mississippi River, where it is immediately carried away in the muddy flow. Effective drainage is provided even under meteorological conditions which include a possible rainfall of 3½ inches in an hour or 9 inches between dawn and sunset. The effects on mortality statistics of this colossal installation have fully justified the outlay. In the decade 1880–89 the death-rate from malaria was 156 per 100,000, and from typhoid 21; last year these figures stood at 4 and 13 respectively; the death-rate from all causes having fallen in the same period from 28·6 to 18·2. Some of the credit may be attributed to the treatment of the water-supply by a new continuous process, the raw water from the river passing first through a grit chamber, being then mixed with the appropriate quantity of ferrous sulphate and milk of lime, thereafter sedimented, and finally sterilised by chlorination. Other recent improvements, such as almost complete rat-proofing of buildings, will conduce to make the stay of the delegates pleasant, especially as the mean temperature to be expected during the congress is 66° F. The special train with sleeping cars bringing delegates from Chicago will be parked so as to allow of the cars being used as sleeping quarters. The s.s. *Comas* of the Morgan line will make a special trip from New York to the Gulf of Mexico on April 21st. Other organisations such as the Air Service Medical Association of U.S., the American Radium Society, the Association of Military Surgeons of U.S., and the Medical Veterans of the World War will take the opportunity of meeting during the assembly. The extensive commercial exhibit, arranged by Mr. Will C. Braun, of 535, North Dearborn-street, Chicago, will be in the Josephine Hutchinson Memorial Building. A carnival ball, a fête champêtre, and a tournament of the American Medical Golf Association complete the attractions, which will be added to by the beauties of the old French quarter, dating back to the foundation by Bienville in 1718 and the location here of the French Government of Louisiana. The New Orleans School of Medicine was started in 1834, and the Tulane Hospital of the University likes to be reminded of the fact that it was in 1917 the first base hospital in the Southern States to be fully organised.

THE TREATMENT OF BILHARZIA DISEASE.

IN his paper on the Treatment of Bilharzia Disease with Tartar Emetic in South Africa, which appears in our present issue, Dr. F. G. Cawston confirms the work already done by J. B. Christopherson[1] in Egypt and by G. C. Low and H. B. G. Newham[2] in London on this important subject. His work was embodied in the Streatfeild Lecture, delivered under the auspices of the Streatfeild Research Scholarship, a recent foundation at the Royal Colleges of Physicians and Surgeons. His results bear out the beneficial results obtained by the authors just mentioned, and it would now seem as if antimony was a real specific for such infections. It is questionable, however, if the doses given by Cawston are large enough, some of his cases only receiving a total quantity of 9 or 10 gr. of tartar emetic in all. Christopherson and Low, on the other hand, believe that at least 20 gr., if not 30 gr., should be the total maximum dose, and their carefully recorded results would tend to show that such a dosage is the correct one. In Cawston's conclusions he states that a dose of 1½ gr. is sufficiently large to administer to any patient at one dose, but there is no reason why 2 or 2½ gr. even should not be given to any healthy adult. The authorities mentioned begin usually with ½ gr. for the first dose and then raise the quantity gradually up to 2½ gr., noting carefully any signs of idiosyncrasy that may occur. Cawston's idea that the rise of temperature which so often occurs after antimony injections is due to sepsis or exposure to cold will not hold. We hope that people who give such injections are too careful to introduce sepsis, and rigors may follow even though the patient is lying in a warm bed. It is more probable that the reaction is due to something in the distilled water, because if this is freshly distilled before each injection such rises of temperature are much less frequent. Other common symptoms, such as cough, tightness in the chest, vomiting, and a tendency to syncope, have also been met with by Cawston, and to prevent these he suggests giving codeia before the injections. Skin rashes are far from common, and the fact of blisters occurring along the line of the vein looks as if there had been a leakage of the salt into the tissues. It would be interesting if the after-histories of these South African cases could be followed up. In an endemic zone the chances of reinfection must always be remembered, of course, but Low and Newham's English-treated cases have all remained cured with no signs of any relapse.

THE TREATMENT AND CARE OF SANE EPILEPTIC CHILDREN.

No therapeutic problem is calculated to awaken greater interest in its successful solution than that of the treatment of the epilepsies. One reason why this treatment has scarcely progressed beyond the symptomatic stage is ignorance of the actual pathogenesis of the condition no less than of the identity or otherwise of the idiopathic and secondary varieties. On the one hand there is the clear case of cortical irritation from organic disease, of Jacksonian epilepsy from tumours, wounds, or vascular disease of the motor area; but difficulties at once commence with the occurrence of generalised epileptic attacks from frontal, parietal, temporal, or occipital wounds indifferently, suggesting that the stability of the cortex is somehow lowered as a whole by a lesion in any part of its extent. When, however, the numerous cases of cerebral trauma free of any epileptic disturbance are borne in mind, we are reduced to the supposition of some predisposing factor for the epileptic cases and find ourselves once more in the futile realm of conjecture. Serious attempts have been made to raise into importance a psychogenic element, more particularly in war epilepsy, and there can be no doubt not only that genuine epileptiform attacks may have their origin in a disordered psyche, but also that treatment along psychological lines may command success.

Notwithstanding the assertions of the psychological extremist such cases are far indeed from filling the whole bill; they constitute only a small minority, how small may be gauged when we bear in mind the epilepsies of uræmia and eclampsia, of alcohol and neurosyphilis, of vascular disease such as the Stokes-Adam syndrome, and when we consider more particularly the epilepsy of infants and children. Variety of causation militates against acceptance of any unifying theory of the disease, but, unfortunately, it renders equally remote the possibility of any discovery of a specific for its treatment, so that the selection of a suitable environment and the adoption of a suitable nerve sedative too often represent the therapeutic endeavour. What can be accomplished has been outlined in a brochure[1] by Dr. J. Tylor Fox, who has been for some 18 months medical superintendent of the colony at Lingfield. His impressions and observations are based on the examination of some 167 patients not yet past their sixteenth birthday. He begins by emphasising the unsuitability of the majority of English homes for epileptic children whose abnormality constitutes a bar to their association with other children, when the tendency grows to keep them more and more within doors. They are not wanted at church, chapel, or Sunday school, at picture shows or other entertainments. Besides, the parents often manifest signs of mental instability. On the other hand, the accepted essentials of the colony are an outdoor life, open windows, daily bath, and a suitable diet. The facts that the fits are ordinary occurrences and call for no special comment, while the teachers, nurses, and attendants in the institution strive to combine a firm discipline with sympathetic understanding, are positive advantages outweighing the staple objection to the system that it eliminates the idea of family relationships and intimacy from the child's life.

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[1] THE LANCET, 1919, i., 1021.

[2] THE LANCET, 1919, ii., 633.

[1] The Care of Sane Epileptic Children. By J. Tylor Fox, M.A., M.D. London: Bale and Sons. 1920. Pp. 40. Price 1s. 6d.

Dr. Fox discusses fully the question of drug treatment. It has been claimed that any good bromide may do by controlling fits is more than balanced by the harm it does in other directions, and that it exercises a harmful effect upon the higher mental functions, but such strictures are probably based on the administration of immoderate doses. The old idea of pushing bromide until the fit habit is broken is not justifiable in view of the fact that arrest of the fits does not exclude the possibility of their reappearance. It may not always be desirable to repress epileptic discharges. Dr. Fox is satisfied there is a small but definite class of epileptic patients who become depressed and irritable for hours or days before a fit, and in whom a major attack "clears the air," and he believes the sound treatment in such cases is to reduce or withdraw whatever routine dose the patient is already taking. His general conclusion is that bromide medication is not by any means the most important factor in the treatment of epileptics on a colony, though the greater number of his cases receive on the average about 20 gr. daily. If bromide is going to lessen or arrest fits it will do so in a few weeks, and if it has not done so in some months the drug may gradually be withdrawn without ill-effect. Borax, as judged by the records of some 69 cases, certainly tends to reduce the frequency of fits, a reduction the more remarkable as in very many cases the drug was given at a time when the attacks were increasing in number. Belladonna and digitalis do not appear to exert any useful influence on fit-incidence, nor do strychnine and calcium lactate. Dr. Fox supplies tables containing valuable information of the general effect of colony life on fits and on mental development. We take pleasure in recommending the pamphlet to all who are concerned with the treatment of epilepsy.

SIMULATION AMONG PRISONERS OF WAR.

Commenting on Professor Pellegrini's article on this subject, which recently received notice in THE LANCET,[1] Dr. Luigi Castaldi,[2] of Florence, gives an interesting account of simulation as practised by Italian officers interned in Austria-Hungary. He points out that the principal difference between simulation in Austro-Hungarian and German camps was due to the fact that while in Germany the only advantage which the successful simulator could obtain was to be transferred to hospital, in Austria-Hungary he had a good prospect of repatriation. This was the reason why cases of simulation in German prison camps were only sporadic, whereas in Austria-Hungary the practice was extremely prevalent. Dr. Castaldi does not hesitate to affirm that 80 to 90 per cent. of the officers who were repatriated from the camps in Austria-Hungary were simulators, only a very small minority having really severe wounds or tuberculosis. Among the private soldiers, on the other hand, with whom tuberculosis and malnutrition were very rife and the mortality very high, simulation was rare, and the great majority of those repatriated were really seriously ill. It was noteworthy that while the diseases simulated in Germany, according to Pellegrini, were all mild, transient, and acute, such as jaundice, œdema, and pseudo-elephantiasis, in Austro-Hungary those diseases were simulated which produced a more or less permanent disability, such as tuberculosis, atrophy of a limb, neurasthenia, and mental disease. Simulation of tuberculosis was effected in various ways—e.g., by injection of air into the skin of the supra-clavicular region so as to give rise to a tympanitic note and crepitations on auscultation, prolonged fasting, and the use of certain drugs, such as thyroid extract in large doses and purgatives, to produce emaciation, ingestion of large doses of iodide of potassium to make the vesicular breathing rough at the apices, smoking of cigarettes containing sulphur, cotton, or straw to produce râles, and the substitution of the sputum of an actually tuberculous patient for which a large sum was often paid. In a few instances diabetes or nephritis was simulated by introduction of glucose or albumin into the bladder or merely into the meatus or beneath the foreskin. Although the simulators were willing to undergo a considerable amount of discomfort to secure their purpose, Dr. Castaldi did not see or hear of any case of suicide or auto-mutilation.

COÖRDINATION OF RESEARCH AT THE MIDDLESEX HOSPITAL.

IT is in our opinion a wise proposal on the part of the authorities of the Middlesex Hospital to amalgamate the Cancer Research Department and the *Bland-Sutton Institute of Pathology* with the Medical School. The object of the proposal, which has just been considered by the Court of Governors, is to bring the various departments concerned in research, both in regard to cancer and other medical problems, into closer coöperation so as to avoid anything like overlapping, and to economise in regard to staff and laboratory accommodation. Closer coördination between those working at these problems would thus be insured. Even within the walls of a single institution it is possible for waste of effort to occur unless some such scheme is carefully worked out. Another advantage which is likely to accrue is that closer relations will be set up between the clinical and the laboratory aspects of the work of the hospital, which should be fruitful in two ways; research would be well directed, and the scientific results would be applicable to the actual diagnosis and treatment of disease, especially of cancer, for which this hospital offers such a valuable field. The recent establishment of university chairs in pathology, physiology, physics, and radiology at this institution should give a great impetus to the application of these branches of pure science to medical problems, especially under the conditions suggested in the new proposals.

AN EXTENDED SCHOOL MEDICAL SERVICE.

A white book,[1] recently issued by the Board of Education, applies to the whole public educational service arrangements similar to those already existing under the more progressive authorities. The extension of the compulsory limit of education beyond the age of 14 years, a change involved in the Fisher Bill of 1918, made this step inevitable. All secondary, continuation, and special schools are now included in the scheme. The minimum age of admission to special schools is reduced from 5 years to 2. Under this heading the deaf-mute will benefit most, as the earlier he is taken in hand the better. With this exception it is to be hoped that local authorities will get sufficient nursery schools going for healthy children before tackling special schools at this age, when it will be found that the blind and otherwise physically defective child will fare very well in the ordinary nursery school. The infinitesimal numbers in the small area covered by a nursery school do not warrant a special school, nor is institutional life for these youngsters advisable; their presence also would educate the healthy child in sympathy and tolerance. Rural authorities will still look in vain for guidance in the regulations which are being framed entirely for urban areas, where problems have quite a different complexion. They specially need help in deciding how the mentally defective and cripple children in scattered areas are to be collected and taught. The possibility of a continuous medical record for the school child is brought nearer by the regulations. The ideal to be aimed at is a dossier for each child, a single card accompanying it from the nursery to the elementary school and from there to the secondary or continuation school. We hope that the process of boiling down the multifarious documents at present relating to one child may not devolve upon the unfortunate school medical officer, already overburdened by schedules and cards. Too many routine inspections make it impossible for him to become properly acquainted with the general hygienic conditions of the schools in which he and the children spend so much of their lives, and in which, if time allowed, he could carry on inquiries of lasting value to educational life. As things are, he is generally a whole-time worker condemned to a dull routine in order to compile the tables demanded by the Board of Education.

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[1] THE LANCET, Dec. 27th, 1919, p. 1201.

[2] Gazzetta degli Ospedali e delle Cliniche, Feb 15th, 1920.

[1] The Consolidated Regulations of the Board of Education for Special Services Relating to th [illegible] (Cmd. 617).

MEDICAL RESEARCH IN INDIA.

IT is probable that few people outside the Indian Medical Service are aware of the treatment that scientific medical investigators have received in the past from the high officials on whom favour or fortune has placed the responsibility for governing India. Fortunately, at the present moment matters have reached a far more satisfactory point, and the value of medical research is now admitted by many administrators in India. Formerly discouragements of all kinds were placed in the way of the investigator, and many valuable researches have been carried out at the worker's own expense, and in spite of official obstacles purposely placed in his way. In the recently issued special number of the *Indian Journal of Medical Research*, containing the papers and addresses read before the Sixth Annual Indian Science Congress, held at Bombay last year, two instances were mentioned which illustrate to some extent the official attitude of the past towards medical research in India.

The first of these was given by Lieutenant-Colonel Sir Leonard Rogers, I.M.S., President of the Congress, in his opening address. He relates how Mr. N. C. Macnamara, I.M.S. (there were no military titles in those days), had been engaged for a number of years in a special study of cholera in India, particularly in Calcutta; how he had published his views, quite novel at the time, that this disease was spread by water contaminated with the stools of cholera patients; and how also he had clearly indicated that the causative organism would be found in the evacuations of the sick. Some time later, while at home on leave, he studied the then young science of bacteriology, *at his own expense*, with a view to further investigations on cholera when he returned to India. Having thus qualified himself to undertake the search for the specific organism of cholera, he applied to the India Office for facilities to pursue his investigations on his return to duty. It is almost incredible, but nevertheless the fact, that the India Office absolutely refused to give him the required facilities, although within a year they granted them and other privileges as well to a German bacteriologist who wished to make a special investigation of cholera in India. This German bacteriologist in the meantime discovered the cholera vibrio while working in Egypt. If Macnamara had been given the facilities when he asked for them it is almost certain that he would have isolated the cholera organism. This instance, Sir Leonard Rogers remarked, was typical of the way in which scientific investigators in India were treated not so very long ago. Mr. Macnamara, who died at the close of last year at the advanced age of 86, retired from the Indian Medical Service in 1876, was elected to the staff of the Westminster Hospital, and became Vice-President of the Royal College of Surgeons of England.

The second instance, a personal one, was related by Lieutenant-Colonel W. Glen Liston, I.M.S., in his address as President of the Medical Research Section of the Bombay Congress. It was to the effect that shortly after joining the Indian Medical Service he became deeply impressed as to the connexion of insects with certain diseases, and in consequence he studied entomology. Later he was transferred to a very malarious station in medical charge of a regiment and a small civil surgeoncy. Continuing his entomological studies there, he discovered a number of new species of anophelines, investigating their habits and locating their breeding-places. This information he embodied in an official report in which he made recommendations for the destruction of the malaria-carrying mosquitoes and for "training" the river which passed through the cantonment. He also suggested that a part of the local hospital should be protected against access of these insects by wire gauze to prevent them biting malaria patients and thus spreading the disease. To his surprise and chagrin, no notice at all was taken of his report, and it was not until a long time afterwards, when he met the principal medical officer, that he asked him as to the fate of the aforesaid report. He was told that, as his proposals were too costly to be accepted, the report had been ignored altogether. He was also informed that when the P.M.O.'s head clerk inquired what he was to do with the report the answer was "file it," which was tantamount to burying it for ever. Thus an opportunity for converting an unhealthy station into a healthy one was lost, and some risk was run of the Indian Medical Service losing a competent investigator, who, after the chilling reception of his first report, might have relinquished scientific investigation for some more popular and remunerative branch of medicine. Fortunately, in this instance no great harm was done in this direction, for Colonel Glen Liston stuck manfully to scientific research, and subsequently it was largely through his experimental investigations that the ætiology of bubonic plague was placed on an unassailable basis.

Happily, as has been said already, medical research in India is now more appreciated; the neglect of the past is being remedied. At the present time there are at least six medical institutes for scientific research in one or another part of India manned by members of the Indian Medical Service. Two schools of tropical medicine are being developed, one in Calcutta and the other in Bombay. The Indian Government has established a fund for medical research, which has already financed a number of investigations which otherwise could not have been carried out. The present, then, may be regarded as offering to research workers favourable opportunities in India for solving some of the important problems which have been awaiting solution. Medical research in India may now be said to be on the upgrade after many years of discouragement.

ASYLUMS MEDICAL STAFF.

THE Board of Control, in a circular (No. 560), dated March 3rd, addressed to the visiting committees of county and borough asylums, suggests many improvements in the status of the asylums medical service. Increased salaries, along with liberty to marry and to live outside the ring-fence, are designed to make the lot of the medical officer a happier one, while restriction in the number of recent cases under his individual care and the granting of study-leave are to increase the efficiency of his work and his interest in it. If the welfare, treatment, and recovery of patients is not to be jeopardised, and the study of mental diseases is not to lag behind that of other branches of medicine, the Board of Control urges upon asylum committees the need of initiating measures to maintain progress, and offers to confer with them as to the best lines of carrying the measures through.

THE MEDICAL AND DENTAL REGISTERS.

THE total number of names on the Medical Register on the last day of the year 1919 was 44,522, being 596 more than a twelvemonth previously. 1322 names were added by registration during the year, 34 were restored, and 760 removed, 643 on evidence of death. We miss a record of the proportion of men and women practitioners, which would be of general interest. 1500 names appear in the Colonial List and 165 names in the Foreign List. The professional colleges of Alberta and the North-West Territories of Canada now figure among the bodies granting degrees registrable in this country. The Dentists' Register contains 5455 names, being 112 fewer than a year ago, and only a bare 315 more than in the year 1913. Among the qualifications entitling certain colonial and foreign dentists to enrolment appear for the first time the D.D.S. of Dalhousie and of Laval (curiously mis spelled Naval) University, the L.D.S. of the Royal College of Dental Surgeons of Ontario, and the Royal Swedish Dental Diploma. The Medical and Dental Students' Register contains the names of 3420 medical students enrolled during the year 1919. 1375 in England, 1387 in Scotland, and 658 in Ireland. Comparable figures for 1913, the last pre war year, were 650 + 536 + 294 = 1480. The entries of dental students for the years 1913 and 1919 are 361 and 612 respectively. It should be noted, however, that from 1916–18 the dental entry barely exceeded an average of 150 a year. Taken as a whole an inspection of these registers assures a sufficiency of recruits to the medical and dental professions, but for the nonce the shortage of registered dentists remains unrelieved.

THERE are 155,729 persons on the books of the Bristol Insurance Committee.

ARRANGEMENTS have been made for applying the Schick test and actively immunising against diphtheria the susceptible children in 100 public schools of New York City.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Remuneration for Public Medical Services.

A LARGELY attended meeting of the Poor-law medical officers of the north western counties was held recently at Clones, county Monaghan, at which several resolutions dealing with the remuneration for certain public services were unanimously passed. In the first place, the meeting reiterated the demands of the Irish Medical Committee regarding the minimum salaries that should be accepted for Poor-law appointments and for Poor-law locum tenens duty. A further resolution dealt with a subject to which, up to the present, medical men have paid too little attention—the salaries paid to Poor law medical officers in their capacity as medical officers of health. These salaries have hitherto been so small as to be almost negligible: they range from £5 to £25 a year, the average being about £15. It is now demanded that the minimum salary for rural districts should be £50 and for urban districts £75. Poor-law medical officers, by virtue of their office, are entitled to the office of registrar of births, deaths, and marriages The emoluments are trifling and in many cases medical officers have thrown up these appointments. The Clones meeting demanded a uniform fee of 2*s*. 6*d*. per entry. A more important, and an entirely just, demand is that the State should pay a fee of 5*s*. for each death certificate issued by a medical man. It is out of all reason that this important work should be thrown on the shoulders of the profession without remuneration.

Tuberculosis Sanatoriums for Belfast and District.

At an adjourned meeting of the City Council of Belfast, held recently, it was reported that, in response to a request by the Tuberculosis Committee, the Ulster Medical Society and the Ulster Branch of the British Medical Association, Mr. A. Fullerton, Mr Grimble, and Mr. T. S. Kirk had conferred with Sir Henry Gauvain, in reference to the proposal to develop Graymount as a sanatorium for the treatment of osseous tuberculosis of children. While agreeing that the establishment of such a sanatorium was necessary, they considered that a more suitable site should be procured outside the valley of the Lagan, on the county Down side of that river, which runs through the city of Belfast. In the meantime, until Sir Henry Gauvain reports, the whole matter is in abeyance, public opinion being decidedly against Graymount as a site. Another recommendation was to extend the accommodation of the Whiteabbey Sanatorium for Pulmonary Tuberculosis, which was strongly opposed by Dr. J. D. Williamson, chairman of the Public Health Committee. The cost of this extension, he said, would be anything from £15,000 to £20,000, and, he asked, had there been a commensurate amount of good accomplished for the money spent on tuberculosis in Belfast? His advice was to purchase land outside the Lagan Valley on which to erect a sanatorium worthy of the city of Belfast and not to spend more money on adding to the sanatorium at Whiteabbey, where, he added, "every one knew that cases of acute pulmonary tuberculosis had not a fair chance of recovery." He would not scrap Whiteabbey Sanatorium, but he would use it for advanced cases of pulmonary tuberculosis—as a home for the dying. The council, however, adopted the recommendation authorising the Tuberculosis Committee to take the necessary steps for the preparation of plans and estimates for the Whiteabbey Sanatorium extension.

The Down County Council have purchased a house and grounds on the east side of Belfast Lough called Craigavon, about three miles from the centre of the city of Belfast, for a consumption sanatorium. Against this action the local residents are loudly protesting, and at the half yearly meeting of the Castlereagh rural council all the members expressed themselves as strongly opposed to the county council's proposal to take Craigavon on the ground that the site was low-lying and unsuitable, and that, throughout county

Down, there were higher levels that would be of greater advantage. An inquiry into the question is being held, and the Castlereagh rural council instructed their solicitor, with a deputation from that body, to appear at the inquiry and to oppose the proposal of the Down County Council. In one of the Belfast papers Mrs. Green, the widow of Mr. Forster Green, who established the "Forster Green Hospital for Consumption," states that many years ago, when her husband considered the suitability of several places for a tuberculosis sanatorium—even as far back as 30 years ago—Fortbreda, high and sheltered, was felt to be infinitely better than any site near the shores of Belfast Lough. She entirely agrees with those who say that either side of Belfast Lough is unsuitable for a tuberculosis sanatorium.

A City Bacteriologist.

The City of Belfast Municipal Council have decided that, pending the erection of a municipal laboratory, arrangements shall be made for carrying on the general bacteriological work of the corporation in the Central Tuberculosis Institute, and that a qualified bacteriologist, to devote his whole time to the duties of the office, shall be appointed. The proposed salary is £700 a year, rising by £50 increments to £900, and a whole-time laboratory attendant is to receive £250 a year. It was also recommended that Professor St. Clair Symmers, whose appointment as bacteriologist expired on March 31st, should be retained in that position for a further term of one year at a salary of £350.

April 12th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The First Recorded Case of Aleppo Boil in France.

M. Ravaut has reported to the Academy of Medicine a case of Aleppo boil contracted in France. It occurred in the Pyrenean district in a young girl who had never been out of France. She had been subject to bites by mosquitoes every summer, and two of the bites were followed by nodules, one on the nose and one under the right eye. The lesions had been present for a year and had resisted all treatment. Clinical diagnosis was almost impossible, as neither the induration nor the classical furunculosis was present. Microscopic examination, however, showed by the presence of innumerable Leishman's bodies that the nodule was an oriental sore. Treatment by novarsenobenzol was immediately followed by shrinkage of the lesions. The case is interesting since it is the first reported proof of the propagation of this infection in France; the germ must have been introduced by the Kabyles or by colonials working in the vineyards of the district. Other cases will almost certainly be discovered if a systematic search is undertaken; examinations should be made on small portions of tissue crushed between two slides and not on the serous secretion.

The Eight-hour Day and Hospital Staffs.

Physicians and surgeons are complaining that the institution of the eight-hour day among hospital staffs has totally upset the nursing, and on behalf of their colleagues MM. Cuneo and Sergent have made a protest on this subject to M. Mesurier, director of the Assistance Publique in Paris and of the supervisory council of this administration. The rounds of the honorary staff are usually made from 9 A.M. The change of shift following shortly after their visit results in the treatment being given by nurses who, not having been in attendance on the round, cannot carry it out as efficiently as if they had themselves heard the precise details ordered by the chief. To quote the protest of MM. Cuneo and Sergent "the change of personnel produced by the law of an eight-hour day is very prejudicial to the patients; it would seem as though the law should never have been applied to hospital staffs." Questioned on this subject, M. Mesurier said that it was impossible to discuss the eight-hour day, which is applicable to all municipal employees and consequently to the hospital staffs, who could not be treated differently. The way to avoid the danger emphasised in the memorandum of MM. Cuneo and Sergent is to change the method of application of the law and to make it accord with the interests of the patients. M. Mesurier promised to give the reform his immediate consideration and has no doubt that a new adjustment of the rules will give satisfaction to all parties. This controversy having been published in the press, the union of hospital attendants has issued a protest, in which it accuses the doctors of not having made efforts to adapt themselves to the consequences of the law and of beginning their rounds too late. It is alleged that some of them do not arrive at hospital till 11 o'clock, after having disposed of their private patients. When these clinicians have seen some 100 patients between 11 and 12, the shift which has been on duty since 6 A.M. has no time to complete the treatment and dressings ordered before going off duty, and these are left to the next shift, which has, perforce, to receive its instructions at second-hand. This statement on the part of the hospital staffs seems much exaggerated, and it is only the exceptional cases which have been quoted by them. In practice, when the visiting doctor arrives late, his assistants have already examined the patients and have prescribed for most of them so as to have to refer to their chief for a decision only on new or serious cases. Besides, all the dressings are done in the hospitals by the assistants themselves, not by attendants or nurses.

The Campaign against Cancer.

M. Le Troquer has made a proposal to the Municipal Council of Paris, designed to develop the fight against cancer, which is still on the increase. While in 1910 3073 cases were notified by doctors, last year there were 3619. Nevertheless, M. Le Troquer estimates that, according to results already obtained by numerous scientists, the certain cure of cancer will be realised in the near future by means of radium. Unfortunately radiotherapy has hitherto been confined to the private practice of a few specialists, mainly resident in Paris. Apart from these, there are other medical men—certainly becoming more numerous—who possess of this precious substance a fragment so small as to have little therapeutic value. Obviously, at 800,000 francs a gramme radium is not available for many purses. The Assistance Publique is not in a position to afford this special treatment to the poor. Dr. Regaud and one of his colleagues in the Pasteur laboratories are the only ones who have begun to treat cancer patients in Paris hospitals by radium. In other countries, on the contrary, radiotherapy has developed considerably. For this reason M. Le Troquer asks for the institution of an autonomous hospital dispensary, in connexion with the Radium Institute of the University of Paris, which shall have the possession of 2½ grammes of radium, bought by means of a loan of 2½ million francs, for which M. Le Troquer also appeals. The hospital would be constructed near Paris on a site now available owing to the demolition of fortifications.

April 10th.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

Effect of Altitude on the Blood.

Dr. Voicu, a Roumanian pilot, formerly a medical practitioner, has been studying the effects of a high altitude on the blood, and for this purpose has analysed the amount of iron contained in the organs of soldiers and animals in the highest parts of the Carpathian mountains, as compared with control men and animals. Even after a short stay in the mountains a decided reaction is noticed, since liver and blood and spleen become rich in iron. The explanation is probably that reserve depôts are opened and more hæmoglobin is passed into the blood; since this is used up more rapidly more iron is deposited in the liver. After the second or third week the hæmopoietic apparatus ceases its over-production and the liver gives up its iron to the blood. As a result the iron content of the blood gradually increases, while that of the liver first rises and then falls. This observation is in perfect accord with the result of blood counts made on pilot pupils, who during instruction time are spending, so to say, several months in the air at heights equal to high altitudes. The chief stimulant is probably the rarefied air, but it is likely that radio activity, which is present to a marked degree in the mountains, plays a prominent part.

The Toxicity of Cresols

In the absence of modern and up-to-date disinfectants recourse is had to cresols, which are widely used here instead of the modern lysoform preparations. Dr. Vamossy examined the effects on a number of animals (cats, rabbits, mice, frogs) of the three isomeric cresols, and found that all the three behaved differently. Paracresol is decidedly more poisonous than carbolic acid for both carnivorous and herbivorous warm-blooded animals; orthocresol is equal in toxicity to carbolic acid, as described by Dr. Tollens in 1901, but metacresol is less toxic. A number of crude and saponified samples of cresol on the market were also examined. Contrary to the usual statements, they gave rise to the same symptoms in about the same dosage as carbolic acid and some of the crude samples proved even more toxic. The presence of soap does not seem to diminish the intensity of action, and the same is true for carbolic acid, since the latter, plus soap, introduced into the stomach of an animal, kills just as rapidly as carbolic acid alone.

The Practice of Medicine in Albania

Dr. Vulcan practised during the last four years of the war in the Mohammedan part of Albania and recently stated before the Medical Society of Nagy Szeben that practice in Albania is attended with great difficulties in consequence of social and religious customs. These, with the dense ignorance and extreme poverty of the mass of the people, are responsible for the widespread epidemics which prevail and which have baffled all the efforts of the Austro-Hungarian Government for their suppression. There is no scientific system of native medicine. Herb doctors, known as "hodzsas," combine with their medical practice the use of charms and incantations, with offerings to the gods. Superstitions and astrology are credited and much practised. Surgery is in the hands of unskilled barbers. The condition of women is particularly deplorable. Even the daughters and wives of the so-called cultured classes can never see a male physician, but must be treated through the medium of ignorant midwives. The intermarriage of near relatives and child marriages are an unfailing source of evil. Girls of 12 to 13 years are known to become mothers. Of course, an increasing population under these physical conditions cannot be a healthy and vigorous one. The mortality is great in consequence of the grinding poverty and bad housing. The nutrition is very poor; pork fat is not used, herbaceous oils alone being allowed. The hospitals established of late years may perhaps improve the high mortality rate.

Poisoning with Methyl Alcohol

Owing to the high price of pure refined alcohol unscrupulous brandy dealers have recently sold methyl alcohol, with the result that several of the consumers have died, or have suffered from severe nervous disorders, particularly optic neuritis. In this connexion Dr. Pollak recently gave an address on the comparative toxicity of alcohols. He said that all the alcohols of the methyl series are toxic, but in an ascending scale from methyl alcohol to amyl. Methyl alcohol, or wood alcohol, as it is called here, is cumulative in its effect, the others are not. This seems to be due to the fact that one of the most important effects of methyl alcohol is a great retardation of oxidisation. Methyl alcohol remains more or less unchanged when in contact with the tissues, and as a consequence continues to exert its influence. According to some authorities methyl alcohol partly metabolises into formaldehyde and formic acid, which would account for its toxic effects. In recent years, owing to the making of odourless wood alcohol, there has been much more abuse than has come to light. Some cases have even been reported in which pharmacists have used it in tinctures. It is surprising, said Dr. Pollak, that more peripheral neuritis has not been reported from its use. It seems probable, however, that death comes so soon that peripheral neuritis has not time to develop. It acts specially on the ganglion cells of the retina, but also on other important cells of the central nervous system.

Nagyvarad, March 24th.

TUBERCULOSIS

Tuberculosis as a Factor in Depopulation

A RECENT number of the *Paris Médical* gives an interesting abstract by Dr. Perrin, professor in the Faculty of Medicine at Nancy, of an investigation made by him years ago into the influence of a tuberculous stock on the upward or downward trend of population. Dr. Perrin, in the course of his duties at the hospital at Nancy, made inquiry into the histories of 1000 families, all of the working classes. Of these families, 500 had one or other parent tuberculous, while in each of the other 500 families both parents were free from tuberculosis, the visit to the hospital being on account of non-tuberculous disease. The families were in no other way selected, and were a consecutive series in their attendance at the hospital. Dr. Perrin further states that in their environment, habitations, overcrowding, exposure to infectious disease, alcoholism, venereal disease, and gastro-enteritis, and also in their years of married life, the two groups were exactly comparable. At the same time it must be pointed out that their economic circumstances would require very careful investigation before their similarity can be unreservedly accepted; on this Dr. Perrin's summary in the journal in question does not throw sufficient light.

The first point deduced from Dr. Perrin's data is that, whatever the reason may be, the non-tuberculous group is markedly more prolific than the tuberculous group. Then, not only are the children of the non-tuberculous more abundant, they are also less vulnerable to disease in general, and less affected by tuberculosis in particular. The proportion of healthy children among the non-tuberculous families was double that among the tuberculous. The difference was, in fact, such that a population consisting of households infected with tuberculosis would tend steadily to diminish, while a population composed entirely of healthy non-tuberculous families would tend to double itself from one generation to the next. In all this there is, of course, no valid argument for the policy of leaving the extirpation of the disease to natural laws. Assuming the accuracy of Dr. Perrin's standards for the comparison between the two sets of families, there is nothing but encouragement to the social worker in the view that his human effort towards the elimination of tuberculosis is in the same direction as, and not opposed to, the natural history of the disease itself. These data are an indication of the need for caution in associating a downward curve in the mortality from tuberculosis with particular preventive or curative measures.

The Effect of Tuberculosis on the Length of Life

In the *Statistical Bulletin* of the Metropolitan Life Insurance Company for February a report is published of the effect of tuberculosis on the length of life of industrial policy-holders. The disease reduces the expectation of life of white males by nearly three and a half, and of coloured males by approximately five years. Under the prevailing rates of tuberculosis mortality, the expectation of life of the industrial white male at birth is 46 years, and of the coloured male only 37 years. It is calculated that the eradication of tuberculosis would add as much to the life-span as has resulted from all the sanitary improvements of the last 25 years. The tuberculosis mortality among wage-earners in 1919 shows a favourable decline, equivalent to a drop of 33 per cent. below the figure for 1911. This achievement is attributed to public health and educational work during the past 30 years and to the intensive health conservation work of this company on behalf of its policy-holders. It is also interesting to note that, in the experience of this company, the influenza of 1918 had little effect on the incidence of tuberculosis.

Friedmann's Turtle Vaccine.

The committee officially appointed to investigate the value of Friedmann's remedy has already sat four times. At the first sitting the measures necessary for a thorough investigation of the remedy were discussed. Professor Friedmann attended the second sitting, and at the end of the third sitting he had consented to submitting his remedy to various tests. At the fourth sitting, which was presided over by Professor Uhlenhuth, subcommittees were appointed, one with the task of experimental biological investigations, another with that of clinical investigations, medical and surgical. A committee was also appointed to sift the literature of the subject and to collect hitherto unpublished records. Many well-known names appear on the main committee, including those of Professor Kraus of Berlin, Professor Kruse of Leipzig, and Professor Braun. In a letter to the *Münchener medizinische Wochenschrift* for March 12th, Professor Friedmann, referring to the liberation of his remedy for wholesale testing, appeals to his colleagues to follow strictly his indications and technique, and to fill in certain forms to be forwarded to Berlin with a view to subsequent statistical analyses.

The Campaign against Tuberculosis in Canada.

The province of Quebec is about to embark on an active campaign to eradicate tuberculosis. As elsewhere, Quebec is realising that tuberculosis causes the most striking of all losses of productive population. Toward this end the Superior Board of Health of Quebec has recently appointed a special committee of four medical men competent in public health work. Dr. J. A. Beaudouin is to act as secretary of this committee, the other members of which are Drs. J. E. Laberge, R. Paquin, and E. M. Desaulniers. They will make an exhaustive study of the problem of tuberculosis in the province before applying the knowledge gained in a province-wide campaign. The Quebec Government and the Federal Government will be asked to assist, and boards of trade, the pulpits, platform, and public press will be swung into line to make the campaign a complete success.

A new sanatorium for the treatment of tuberculosis cases is being constructed at Keith in Alberta. The initial capacity is for 175 cases, increasing to 350 when all units are completed.

Annual Reports.

Much of the thirteenth annual report of the *King Edward VII. Sanatorium, Midhurst*, is devoted to bringing up to date the statistical analyses previously published by Dr. N. D. Bardswell. In April, 1919, a highly trained head gardener was appointed to instruct patients in their work. All physically fit for light gardening have shown a remarkable enthusiasm and have gained much useful knowledge. Of the 301 cases analysed, 69 were discharged with the disease arrested, 141 with health much improved, 48 improved, and 43 stationary or worse. Of the 305 throats examined 281 were normal, 24 diseased. The report does not give much information as to modern methods of treatment, such as actino-therapy and lung collapse, but a cheerful account of chicken-farming is added.

The fourteenth annual report of the *Trinidad Association for the Prevention and Treatment of Tuberculosis* contains useful statistical data. During the year 1918 the total number of deaths in the colony (pop. 379,165) from all forms of tuberculosis was 545—an increase of 40 deaths over the mortality of 1917. There was, however, no appreciable rise in the tuberculosis mortality till the last year of the war, and, as a table shows, the death-rate in 1918 was only 1·44 per 1000, as compared with 2·58 in the year 1905–6. This great reduction is regarded as the response to anti-tuberculosis propaganda. Since its establishment in 1905, the association has set itself three chief objectives. Of these, a dispensary for the gratuitous treatment of the disease and an educational campaign have been realised with marked success. But the third objective, a sanatorium for early cases, has not yet materialised. The association is, however, more than ever convinced of its absolute necessity, and an appeal is directed to the Government to help establish a tuberculosis sanatorium in some suitable place in the colony. It is pointed out that stamping out the disease can be effected at infinitely smaller cost than is possible in the United Kingdom. Without State aid it is evident that the tuberculous poor must inevitably provide ever-recurring sources of infection.

Tuberculosis in Foreign Journals.

The *American Review of Tuberculosis* for February opens with a sympathetic obituary notice of Sir William Osler by Dr. S. A. Knoff, who appends a bibliography of Osler's publications relating to tuberculosis. Though this runs nearly into two pages it is probably very incomplete. Dr. J. B. Rogers contributes a paper on Artificial Tuberculous Infection of Guinea-pigs through the Respiratory Route, and Dr. E. H. Funk a paper on Pulmonary Syphilis. The remaining three papers concern various aspects of accidental and artificial pneumothorax.—In the January issue of the same journal new light is thrown on an old subject by Dr. H. Sewall, who discusses the means for sorting out the tuberculous from that large group of patients seeking medical aid for a sense of "ill-defined misery." In conjunction with auscultatory and X ray signs indicative of slight tissue sclerosis about the hilum and upper bronchial radiations, the author has found blood-pressure measurements of inestimable value. The existence of occult tuberculosis is suggested when there is an abnormal lowering of the blood pressure, and when this lowering is progressive, on change from the supine to the erect posture. The author distinguishes between occult and incipient, clinical pulmonary tuberculosis, associating the blood pressure phenomena described with the former only. Though hypotension may also be a feature of incipient clinical pulmonary tuberculosis, it is not characterised by a critical lowering of the blood pressure in the erect posture. In a paper on Complement Fixation, Dr. S. A. Petroff finds that this test in tuberculosis is more specific than the Wassermann test, but it is only one of the many links in the diagnostic chain. And it is a delicate link; to be reliable the test must be carried out by well-trained workers. Dr. Lawrason Brown and Dr. Homer L. Sampson contribute a valuable paper on the Early X Ray Diagnosis of Ulcerative Tuberculous Colitis. They have come to the conclusion that tuberculous colitis occurs far more frequently than is generally supposed to be the case, and that in the early stages the clinical picture may be of little aid in diagnosis. But if the X rays show hypermotility and spasm, or filling defects, and pulmonary tuberculosis exists, then tuberculosis of the colon also may be diagnosed with certainty. Illustrative of the high standard of the Trudeau Sanatorium are the authors' final remarks: "No examination of a patient with pulmonary tuberculosis can be considered complete to-day without a roentgenological study of the intestines."

The first four articles in the *Wiener klinische Wochenschrift* for Jan. 8th deal with tuberculosis. In the first, Dr. M. Hayek, of Innsbruck, discusses the principles of actino-therapy in pulmonary tuberculosis and their relation to the problems of immunity. The value of this paper lies rather in its collection and discussion of current views than in any new matter it may contain. Following a paper by Dr. A. Engel on the statistics of pulmonary tuberculosis in the war—a dismal review—Dr. O. Orszagh gives an interesting account of the reaction of the subjects of tuberculosis to other infections. His figures show that the more advanced the pulmonary tuberculosis, the less violent is the patient's reaction to intercurrent affections, such as tonsillitis, and to vaccination. The last of these papers on tuberculosis is by Dr. W. v. Schulz, who discusses the examination of tuberculous sputum by the zinc precipitation method.

HOUSING NOTES.

The Economic Rent.

IN an article contributed to the current *Journal of the Royal Sanitary Institute* Mr. J. F. Smillie makes a useful contribution to the discussion of the economic factor in the replacement of slum dwellings. The new houses to be erected under the ægis of the Ministry of Health must conform to a rather high standard of amenity. The criticism constantly heard is that the present dwellers in slumdom will not be able to pay more than a small fraction of the rent of these new houses. Mr. Smillie points out that there are many far less attractive houses at present occupied by members of the artisan class, who are earning good wages. He argues that the new houses will easily be filled from this source, and that the dreary rows of Victorian architecture so deserted will provide an outlet from the slums. The process will resemble that which occurs in a colony of hermit crabs when an unusually large and desirable shell is washed among them by the tide. It is a compromise between the ideal and the practical, which certainly commends itself, and which should work out quite easily by the ordinary law of demand and supply.

The London Building Act.

The limit of height in London buildings was discussed at a meeting of the Royal Institute of British Architects on March 29th. Mr. Delissa Joseph read a paper in which he proposed a modification of the Building Act so as to allow of the erection of buildings up to 200 ft. in height opposite parks, public gardens, open spaces, and the riverside, and buildings equal in height to the width of a street when that width exceeded 80 ft. The proposal was made more attractive by suggesting that various improvements in town-planning might be carried out as a result of the increased value of present sites. The argument, however, is not convincing, even could we be sure that the increased value would come to the public purse. For every high building has more than one aspect, and it is only when its long shadow falls upon unoccupied ground throughout the whole day that the "sky-scraper" can be considered innocuous. There are, perhaps, a few sites on the southern bank of the river and on the south aspect of the larger parks, where such buildings might be erected with advantage to secure for city homes every available glimpse of sunshine, but any alteration in the existing Act must be carefully safeguarded. Under no circumstances must we permit in this country buildings such as have been described by Professor James Ford[1] as "a structure five or six stories high, or perhaps higher, built largely of wood, but with brick exterior, three or four rooms deep, sharing party walls with similar buildings to the right and left, sharing with its neighbours a narrow court or shaft, at the sides and at the rear an ugly yard." Hygiene must be secured, fool-proof lifts installed, and adequate security provided against the danger of fire.

URBAN VITAL STATISTICS.

(Week ended April 3rd, 1920.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 18,000,000 persons, the annual rate of mortality, which had steadily increased from 15·6 to 18·7 in the six preceding weeks, fell to 16·7 per 1000. In London, with a population of nearly 4½ million persons, the annual death-rate was 16·3, or 3·0 per 1000 below that recorded in the previous week, while among the remaining towns the rates ranged from 5·7 in Carlisle, 6·3 in Oxford, and 7·8 in Wimbledon, to 27·7 in Blackburn, 29·8 in Wigan, and 43·4 in Dudley. The principal epidemic diseases caused 456 deaths, which corresponded to an annual rate of 1·3 per 1000, and comprised 180 from measles, 123 from whooping-cough, 72 from diphtheria, 63 from infantile diarrhœa, 11 from scarlet fever, 5 from enteric fever, and 2 from small-pox. Measles caused a death-rate of 2·6 in Lincoln, 3·6 in Wigan and in Newport (Mon.), and 5·0 in Barnsley. The 2 deaths from small-pox belonged to Liverpool. The deaths from influenza, which had steadily increased from 66 to 392 in the nine preceding weeks, fell to 379, and included 124 in London, 30 in Birmingham, 21 in West Ham, and 9 each in Manchester and Blackburn. There were 2023 cases of scarlet fever, 1983 of diphtheria, and 20 of small-pox under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 2101, 2043, and 14 respectively at the end of the previous week. The causes of 29 deaths in the 96 towns were uncertified, of which 6 were registered in Birmingham, and 3 each in Liverpool, St. Helens, and Manchester.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2¼ million persons, the annual rate of mortality, which had increased from 14·2 to 18·0 in the six preceding weeks, fell to 17·2 per 1000. The 376 deaths in Glasgow corresponded to an annual rate of 17·6 per 1000, and included 22 from measles, 15 from influenza, 3 each from scarlet fever, whooping-cough, and diphtheria, 2 each from small-pox and infantile diarrhœa, and 1 from enteric fever. The 117 deaths in Edinburgh were equal to a rate of 17·9 per 1000, and included 3 from influenza, and 1 each from measles, scarlet fever, whooping-cough, diphtheria, and infantile diarrhœa.

Irish Towns.—The 185 deaths in Dublin corresponded to an annual rate of 23·2, or 0·7 per 1000 below that recorded in the previous week, and included 10 from whooping-cough, 3 each from measles and influenza, 2 from infantile diarrhœa, and 1 each from scarlet fever and diphtheria. The 248 deaths in Belfast were equal to a rate of 31·3 per 1000, and included 33 from influenza, 5 from whooping-cough, 4 from infantile diarrhœa, and 2 each from measles and scarlet fever.

(Week ended April 10th, 1920.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 18 million persons, the annual rate of mortality, which had been 17·9, 18·7 and 16·7 in the three preceding weeks, fell again to 16·6 per 1000. In London, with a population of nearly 4½ million persons, the annual death-rate was 17·6, or 1·3 per 1000 above that recorded in the previous week, while among the remaining towns the rates ranged from 6·3 in Cambridge, 7·8 in Wimbledon, and 7·9 in Smethwick, to 23·6 in Walsall and Halifax, 26·1 in Dudley, and 32·8 in Wigan. The principal epidemic diseases caused 440 deaths, which corresponded to an annual rate of 1·3 per 1000, and comprised 182 from measles, 101 from whooping-cough, 66 from diphtheria, 64 from infantile diarrhœa, 21 from scarlet fever, and 6 from enteric fever. Measles caused a death-rate of 3·0 in Wigan, 3·4 in Lincoln, and 3·6 in Newport (Mon.); whooping-cough of 1·2 in Southampton and 2·4 in Darlington; and diphtheria of 2·0 in Bootle and Aberdare. The deaths from influenza, which had been 312, 392, and 379 in the three preceding weeks, declined to 332, and included 105 in London, 30 in Birmingham, 13 in West Ham and in Manchester, and 10 in Plymouth. There were 2011 cases of scarlet fever, 1995 of diphtheria, and 26 of small-pox under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 2023, 1983, and 20 at the end of the previous week. The causes of 30 of the 5662 deaths in the 96 towns were uncertified, of which 6 were registered in Birmingham, 3 in Southend-on-Sea, and 2 each in Liverpool and Warrington.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2¼ million persons, the annual rate of mortality, which had been 17·8, 18·0, and 17·2 in the three preceding weeks, slightly rose to 17·3 per 1000. The 380 deaths in Glasgow corresponded to an annual rate of 17·8 per 1000, and included 21 from influenza, 17 from measles, 5 each from whooping-cough, diphtheria, and infantile diarrhœa, and 1 from scarlet fever. The 103 deaths in Edinburgh were equal to a rate of 15·7 per 1000, and included 6 from influenza, 2 from infantile diarrhœa, and 1 from diphtheria.

Irish Towns.—The 213 deaths in Dublin corresponded to an annual rate of 26·8, or 3·6 per 1000 above that recorded in the previous week, and included 13 from whooping-cough, 7 from measles, 5 from influenza, 3 from infantile diarrhœa, and 1 from enteric fever. The 207 deaths in Belfast were equal to a rate of 26·1 per 1000, and included 20 from influenza, 2 each from scarlet fever and whooping-cough, and 1 each from measles, diphtheria, and infantile diarrhœa.

Colonel C. Pye Oliver, C.M.G., M.D., Assistant Director of Medical Services, Home Counties Division, been placed on the commission of the peace for the of Kent.

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[1] Monthly Review U.S. Bureau of Labor Statistics, July, 1919.

Correspondence.

"Audi alteram partem."

ABDOMINAL EMERGENCIES.

To the Editor of THE LANCET.

SIR,—Professor Charles F. M. Saint, at the conclusion of his article in THE LANCET of April 10th on Abdominal Emergencies in which Operative Interference is either Contra-indicated or Restricted, justly states that the *general*[1] conclusions to be drawn from the cases that he cites are not new, but are worthy of recapitulation. In so far as he emphasises that operation is contra-indicated in certain abdominal emergencies, and the importance of making a careful investigation of history and symptoms, and thus arriving, if possible, at an accurate diagnosis by which an unnecessary operation may be avoided, his remarks are worthy of close attention. When, however, we come to study the cases he mentions in particular, certain statements he makes cannot be allowed to pass unchallenged, as the treatment he adopted, though apparently justified by the results, was, in my opinion, in certain instances surgically unsound. Let us take Case 15, the leaking duodenal ulcer. In this case the diagnosis made was a ruptured duodenal ulcer with a small leak which, though affecting the general peritoneal cavity at first, was *apparently*[1] at the time of admission, 36 hours after onset, "shut off." Operation was vetoed because he had "obvious trouble" in the chest, emphysema, and bronchitis, and there was a trace of sugar in his urine. After a somewhat slow convalescence he was discharged from hospital "much improved." I am not aware whether there are any statistics available of the results of the non-operative treatment of ruptured gastric or duodenal ulcer, but most surgeons will probably agree that the percentage of recoveries is extremely small and that the unfortunate existence of a belief in its efficacy has led to some terrible disasters.

Moynihan writes: "The possibility of spontaneous recovery, though not denied, is yet so remote as to make it imperative to adopt operative treatment at the earliest possible moment. The risk of operation is definite, the hazard of delay is immeasurable." Although it be admitted that the perforation was subacute, yet the risk of subphrenic abscess or of a septic inflammation spreading through the diaphragm to the chest was by no means inconsiderable. This gambler's throw was indulged in because the urine contained a trace of sugar and the lungs were somewhat emphysematous.

I next come to a criticism of Case 4, a case of appendix abscess. On deep palpation a mass could be felt on the right side of the pelvis, and per rectum this same mass could be reached high up with the tip of the finger and readily demonstrated bimanually. An appendix abscess was diagnosed, but operation was vetoed because it was thought probable that the abscess would evacuate itself naturally into the rectum. If we follow the good old surgical maxim to evacuate pus immediately we surely cannot go far wrong. What guarantee have we that the collection of pus before it has obliged the surgeon by emptying itself into the rectum may not track up and involve the subphrenic space or even burst and involve the general peritoneal cavity. Here, again, surely "the risk of operation is definite; the hazard of delay is immeasurable."

Case 11.—Pneumococcal peritonitis. A girl, aged 9, had acute peritonitis, which from a consideration of the history was considered to be pneumococcal and operation again vetoed. The little patient lingered on for four days and then passed away. Now, although the prognosis of the diffuse type and pneumococcal peritonitis is bad, it is by no means hopeless. Annand and Bowen[2] give particulars of 46 cases of the diffuse variety, of which 18 underwent operation. "Of the 18 cases operated on 6, or 33·3 per cent., recovered, whereas all those not operated upon died." The statistics given by Rischbieth,[3] Carmichael,[4] and Cameron,[5] although all emphasising the seriousness of the prognosis, show that the latter is by no means hopeless. It is difficult to understand why operation was vetoed with its chances of success, whereas the only alternative for the little sufferer was death.

I am, Sir, yours faithfully,
A. G. T. FISHER, M.C., M.B., Ch.B.,
F.R.C.S. Eng.,
Surgical Specialist to Appeal Boards, Ministry of Pensions, &c.
late Surgical Specialist, R.A.M.C.
London, April 12th, 1920.

THE HIPPURIC ACID SYNTHESIS TEST.

To the Editor of THE LANCET.

SIR,—The kidney, like the liver, is an organ with multiple functions. Every one of these functions must be tested individually, and among them is the synthesis of hippuric acid, which is more especially the work of the renal parenchyma. Therefore it is logical to think that the study of hippuric acid elimination may give useful data as regards the functional condition of the kidney. We do not wish to substitute any new method for methods which have proved their value, but simply to add a test which furnishes an independent and complementary control.

Hippuric acid elimination is profoundly influenced by diet. The greater the intake of food the greater the output of hippuric acid. The hippuric acid output is remarkably constant in the same individual taking every day about the same diet, both as to quality and to quantity. In five consecutive days differences found were very slight. Therefore it is enough to make a single estimation, providing a diet not devoid of green vegetables has been taken.

The "normal" figure measuring hippuric acid elimination gives no information as to how the renal parenchyma is functioning. Healthy individuals will give results varying greatly according to diet. Hence it is necessary to base a test on conditions not dependent on the intaken food.

The normal amount of hippuric acid having been estimated, we give the patient a dose of 0·5 g. of benzoic acid and another of 0·5 g. of glycocoll. Even this dose of glycocoll may be dispensed with, as the organism is able to manufacture it when needed, but it has the advantage that it greatly diminishes the slight toxicity of benzoic acid. From the time of taking these doses the total amount of urine is collected during 24 hours. Normally the synthesis should be complete within that time, and analysis should show an excess over normal of about 0·74 g. for 24 hours. This is the theoretical amount, but usually the excess is between 0·68 and 0·70. Since the normal output for a healthy subject is about 0·40 g., the figures we should expect to find are somewhat as follows: 1·14 g.—that is, 0·40 g. the normal amount and 0·74 the amount synthesised from the benzoic acid and glycocoll we have given. When the figure is lower, say 0·50, 0·40, &c., it may be asserted that the hippuric function is abnormal, and that probably there is some renal parenchymatous disorder. If this be the case, the analysis must be repeated on the following day to see if the experimental synthesis shows protracted insufficiency. In serious cases there may be no synthesis whatever on the following day, and the "normal" output found before the dosing is returned to. Generally the complementary amount is found, and the total synthesis is complete in 48 instead of 24 hours.

This test is mostly useful if carried out several times at fixed periods; for instance, at weekly intervals. I have had the opportunity of following patients and of noting either progressive augmentation or diminution of hippuric acid output in connexion with treatment.

From the point of view of hydrology, I am certain this method of investigation merits attention. Professors Desgrez and Adler have shown that acids diminish the power of the kidney to produce hippuric acid On the other hand, I have noted that diuretic waters (sulph calc) favour such a production, exciting the renal parenchyma, sometimes to such an extent as to double the output I am, Sir, yours faithfully,

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[1] The italics are mine.

[2] THE LANCET, 1906, vol. i., p. 1591.

[3] Quart. Journ. of Med., Jan. 11th.

[4] Brit. Med. Jour., Sept. 18th, 1909.

[5] Proc. Roy. Soc. Med., 1912, vol. i., pp. 123–133.

P LOUIS VIOLLE
Vittel April 3rd, 1920 Médecin Consultant

TREATMENT OF GUINEA WORM

To the Editor of THE LANCET

SIR,—Towards the close of his interesting note on the treatment of guinea worm, which appeared in your issue of April 10th, Dr J Graham Forbes states that he welcomes the appearance of Dr J W S Macfie s paper on the use of intravenous injections of tartar emetic (THE LANCET, March 20th), especially as "there has been no advance in our knowledge of an effective cure for guinea worm which will cut short the tedium and risk of slow extraction by winding in vogue for so many years "

It seems advisable, therefore, to record the fact that both Jeanselme[1] and Montpellier[2] have recently employed injections of arsenobenzol, apparently with considerable success I append the references, as they may be useful —I am, Sir, yours faithfully,

ANDREW BALFOUR
Wellcome Bureau of Scientific Research 25–27 Endsleigh gardens N W 1 April 12th 1920

THE ÆTIOLOGY OF EFFORT SYNDROME

To the Editor of THE LANCET

SIR,—The results of Dr Gordon Barlow s thorough investigations on the Ætiology of Effort Syndrome recorded in your issue of March 13th rightly emphasises the recognition of infection as a common cause of the condition His conclusions on the nervous origin of these cases however, do not seem to be warranted even by his own findings I think there is little or no justification for giving the nervous element so insignificant a place All we know is that there is in a good many of these cases a definite illness of some such kind as influenza, from which the effort syndrome itself or the physical inactivity which leads to it dates It is by no means proved that, in some cases at least, the nervous depression following such a condition, or the simple weakness of convalescence merely prolonged, is not the father to the inactivity which leads to the effort syndrome It seems to me that the evidence deduced by Dr Barlow goes to prove beyond a doubt that a nervous state and the effort syndrome are very much more often than not conditions associated as sequel and cause, and vice versa If there is any one thing as important as any other in Dr T Lewis s ' The Soldier s Heart and the Effort Syndrome ' it is the multiple ætiology assigned to effort syndrome , in fact, the use of the term seems to be justified only in so far as it implies a vague ætiology

With the introduction of new terms the tendency seems to prevail of limiting our attention to the condition of the organ which was responsible for the introduction of the new term From this weakness of ours I suppose arises the attempt to exclude the nervous factor in the causation of the effort syndrome The man in the street knows as well as the physician that the weakness following any illness is not a manifestation of damage done to the heart alone except perhaps in rheumatic fever In the case of influenza, which is so important an ætiological factor in the effort syndrome, the harm done to the body as a whole is most obvious, and its special effect on the nervous system is apparent as nervous depression Why in the face of all that the histories of these patients show —disturbed sleep terrible dreams worry, anxiety, and a host of other symptoms—an attempt is made to eliminate the nervous factor is not clear Perhaps it is partly because we explain them as "neuroses,' ill defined but none the less clinical entities From the examination of a large number of these cases I am convinced that the nervous element is a very important factor both in the production and the aggravation of this condition It seems to me that the cardiac manifestations are only more obvious, and the nervous still linger in the threshold of the "neurotic ' and the "neurasthenic state The latter are less obvious but no less important from the point of view of treatment We know that apart from deficient physical exercise, neglected convalescence from acute illnesses and excessive physical exercise other conditions may produce the effort syndrome at least transiently, from some hours to a day or two for example, traumatic neurasthenia (in which may be included "war neurasthenia), insomnia, the condition of the "morning after the night before We can demonstrate this ourselves if only we break rest for two or three nights consecutively and attempt anything like moderately hard work Just because we have begun to use a new term, the effort syndrome, when it essentially means symptoms of general weakness, why should we try to prove that in the *former* the symptoms cannot be of nervous origin, whilst in the latter it can Both from the point of view of treatment and of the diagnosis of the more serious conditions which can give rise to the effort syndrome it seems wiser to regard the condition as having a multiple ætiology Furthermore it can hardly be denied that every bad case of neurasthenia exhibits the effort syndrome, and, at least in these cases, neurasthenia remains the cause of the condition True enough these cases are no longer effort syndrome as some look at it for the nervous symptoms predominate

Even so eminent a cardiologist as Dr Lewis only entertains the unlikelihood of this condition having a "*purely* nervous origin It is very true all these cases cannot be said to be due to a "functional neurosis but that not a few are of nervous origin has yet to be disproved We cannot lay too much stress on a primary origin for a history of infection is positive not only in a large percentage of "effort syndrome cases but in all kinds of patients or even healthy men The fact that judicious exercises cure these cases does not disprove the nervous origin of some at least of them for no treatment can be better for anybody in the pre neurasthenic state It seems to me to be, on the whole better to look on these cases as of dual origin at least for if such a conception draws our attention to the simultaneous treatment of the nervous system, the rest of the body—and the mind—our patients will have the most thorough treatment

I am, Sir yours faithfully
H O GUNEWARDENE M B B S Lond
Clinical Assistant National Hospital for Diseases of the Heart
London April 10th 1920

VACCINES AND THE DIPHTHERIA CARRIER

To the Editor of THE LANCET

SIR,—If I may presume to make comment on Professor J Eyre s most interesting letter in your issue of April 10th on the above subject I might say that in my original thesis, of which the paper appearing in THE LANCET of March 27th was a synopsis I reviewed the literature relating to the problem of the diphtheria carrier and quoted in full the passage from Bosanquet and Eyre, "Serums Vaccines and Toxins, pp 134 136 which included the sentences brought to notice by Professor Eyre My comment was that vaccine treatment was not unduly obtruded and, the recommendation that it should be "autogenous,' made its application unattractive and its general availment problematical I have had no experience of "autogenous diphtheria vaccine, but the question of the superiority of "polyvalent" diphtheria vaccine is still under consideration and only awaits time and experimental proof for its elucidation As however, the series of cases dealt with was treated with "monovalent vaccine I fear that ' confirmatory evidence for the efficacy or superiority of any other was hardly afforded Any claim made was for the realisation that with a large number of patients consistent results were obtained in a reasonable time and that, accordingly, the absolute necessity for "autogenous" vaccination appeared not to exist. To make autogenous vaccines for hundreds, if not thousands, of diphtheria carriers would entail such an expenditure of labour, time, and money as very effectually to put their general employment outwith the province of routine practice and practicable therapeutics. After all, the necessary facilities for the elaboration of complex media are not given to everyone who has to work with such cases, nor can the requisite technical skill on the part of the administrator often be presumed. On the other hand, "stock" vaccine might quite readily be produced centrally and distributed much in the same way as is practised with antidiphtheritic serum itself.

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[1] Jeanselme E Bulletin de l Académie de Médecine (Paris) 1919 Feb 4th Year 83 3 Ser vol lxxxi p 156

[2] Montpellier J Bulletin de la Société de Pathologie Exotique 1919 Dec vol xii p 730

Unquestionably, availability coupled with ready and easy administration are the criteria by which any therapeutic measure must be judged. Only in so far as these are present will general favour be bestowed on it. It is scarcely necessary to suggest that if antidiphtheritic serum required to be autogenous, and if every physician who to-day considers its administration a simple routine practice were called upon to undertake its manufacture diphtheria would not claim for itself the finest results in the whole field of serum therapy. If the omission of "washing with several changes of normal saline" increases the liability to "uncomfortable local reactions" it has not manifested itself in over 200 injections of four separate vaccines extending over a period of years, but if experience proved the necessity, such (and other refinements of technique which may from time to time be devised) might well be practised without materially affecting the labour of preparation. This very circumstance might conceivably be used as an additional plea for the advisability of producing "bulk" vaccine, as by such manœuvre the undoubted liability to error through variability of media would be eliminated.

I am, Sir, yours faithfully,
J. L. BROWNLIE.
Glasgow Corporation Laboratory, April 10th, 1920.

CARDIAC ENLARGEMENT IN CHILDREN: THE X RAY DATA.

To the Editor of THE LANCET.

SIR,—I should be greatly obliged if any of the readers of THE LANCET, who may have had experience in X ray methods of detecting and estimating cardiac enlargement, could inform me if, in their experience, the X ray data which are laid down for estimating cardiac enlargement in adults hold good in children. This question more especially refers: (*a*) to the "Cardiac-Thoracic Diameter Ratio," in adults, 39 to 50 per cent. normal, and 53 per cent., or over, pathological; and (*b*) to the apical "Index of Depth," of 7–14 mm. normal, in the adult, and 20 mm. and above pathological.

In particular, I would like to obtain a table of the various "Indices of Depth" at different ages. For instance, if, in a child of 6 years, the index of depth is 6 mm. and the cardiac-thoracic diameter ratio is 46 per cent., could such a heart be considered enlarged? My view is that it would not.

I am, Sir, yours faithfully,
Royal Sussex County Hospital, C. FRED. BAILEY.
Brighton, April 10th, 1920.

BLIND MASSEURS.

To the Editor of THE LANCET.

SIR,—Probably those of us who do not agree with all that has been written in favour of the blind masseur have been restrained by our sympathy for the individual, but I feel that to allow one side of the question only to be stated is unfair both to the patients and to those doctors who have not specialised in this particular form of treatment. The following points require consideration:—

1. No blind person can satisfactorily control the free-standing exercises used in the treatment of the common deformities. Even the resistive exercises and pressures can only be applied by the continuous handling of the patient from head to foot. Such handling is obviously undesirable, and to my mind positively detrimental to the treatment. The following exercises may be mentioned as a few examples beyond the scope of the blind:—Klapp's creeping exercises, Fraenkel's exercises, hanging in head suspension apparatus, side-lying over boom, balance walking, correcting in belt.

2. Only the sighted can control the balance and coördination exercises used for chorea, tabes, disseminated sclerosis, &c. In these cases, handling of the patient destroys the desired effect.

3. In the treatment of cardiac cases the most careful observation is absolutely essential. No blind gymnast can possibly detect the slight changes in colour and general expression which are the early warnings of strain.

4. The coöperation of the patient is especially necessary when the gymnast is blind. It is common knowledge that certain patients, malingerers and not infrequently school children, rather than being helpful, are positively obstructive. It is the simplest thing in the world for a troublesome patient to completely deceive the blind and so nullify the treatment.

5. The general practitioner frequently states that the private patient expresses reluctance to being treated by anyone not physically fit. The private patient is, of course, free to make his choice, but the exercise of this somewhat natural instinct is denied to the hospital patient. In this connexion I should like to point out that the sighted workers in a large department invariably find that they have extra labour thrown upon them where a number of workers are blind, as it is universally admitted that special cases have to be picked out for treatment by the latter.

6. The capabilities of the blind in the field of electrotherapy still remain to be discussed.

For the above reasons I suggest that it is unfair to the blind themselves to insist that their work is absolutely equal to that of the sighted; and to demand from them an equal standard is to place them in a false position, which is not to their ultimate advantage. My excuse for giving these views is that I have come across a number of blind masseurs who feel very strongly their own limitations, and who state that more is being demanded of them than they can possibly accomplish.

I am, Sir, yours faithfully,
E. M. MAGILL, O.B.E., M.B., B.S.,
Late M.O. in charge of X Ray, Electro-therapeutic and Massage Departments, Military Hospital, Endell-street, W.C.
Bedford-place, W.C., April 11th, 1920.

AFTER-EFFECTS OF MALARIA.

To the Editor of THE LANCET.

SIR,—I should like to refer shortly to the letter in your issue of March 27th by Dr. A. Hurrell Style, whose observations suggest a causal connexion between malaria and arterio-sclerosis. That the malarial poison may be a producer of arterio-sclerosis, just as in the case of rheumatism, gout, scarlet or enteric fever, is quite possible, and that arterio-sclerosis is to found in a certain proportion of cases of malaria is certain. There is, however, in my mind a possible fallacy which would require to be eliminated in order that incidental concurrence may not confuse the issue—namely, that we have in very few cases indeed any evidence of the condition of the arteries prior to the incidence of malaria.

Those of us who had opportunities of examining many hundreds of young adults during the period of recruiting had occasion frequently to draw attention to the remarkable degree of arterio-sclerosis to be found occasionally in comparatively young men otherwise apparently healthy. It would certainly be of value if some observer could elucidate this point.

I am, Sir, yours faithfully,
JAMES R. WHITWELL, M.B.
St. Audry's Hospital, Melton, Suffolk, April 12th, 1920.

Sir James Barr, C.B.E., LL.D., has been appointed a Knight of Grace of the Order of the Hospital of St. John of Jerusalem in England.

Medical News.

Royal College of Surgeons of England —A quarterly meeting of the Council was held on April 8th, Sir George H Makins, the President, being in the chair —The secretary reported the death on March 23rd, of Mr George Arthur Wright, past member of the Council The following resolution was passed —

> The Council hereby express their deep regret at the death of Mr George Arthur Wright whom they highly esteemed as an able surgeon keenly interested in the advancement of surgical skill and knowledge and they desire to convey to Mrs Wright their sincere sympathy and condolence in the loss which she has sustained *The Council do also record their appreciation of Mr Wright's services to the College as a member of the Council and also of his work in the museum at an earlier period of his professional career*

—A vote of thanks was given to Mr C Kirkman Finley for presenting through Mr J G Turner, F R C S, the skulls of 20 Burmese and 4 Chinese who were executed in gaols in *Burmah* —A vote of thanks was given to Sir Rickman Godlee for presenting the original drawings which he had made for his "Atlas of Human Anatomy," 1880, and the calvaria of the patient he trephined in 1884 for the removal of a cortical tumour, the first operation of its kind —In accordance with the recommendation of the Jacksonian *Committee*, it was resolved that the subject for the Jacksonian prize for the year 1921 should be "The Pathology, Diagnosis, and Treatment of Tuberculous Disease of the Spinal Column with its Complications" —The following Members of 20 years' standing were elected to the Fellowship Henry Alexis Thomson C M G, *Professor of Surgery, University of Edinburgh*, and Wilfred Thomason Grenfell, C M G, Superintendent of Labrador Medical Mission and of Royal National Mission to Deep Sea Fishermen

Chadwick Public Lectures —On May 4th, 7th, and 11th, at 5 P M, in the Pathological Lecture Hall of the *New Medical Schools* at *Cambridge*, Dr F G Crookshank will deliver three lectures on Man and Disease On May 17th, at 7 30 P M, in the Town Hall, St Helens, Lancashire Captain R Reiss, chairman of the executive committee of the Garden Cities and Town Planning Association, will deliver a lecture on Housing and Health, and at 7 P M on May 12th and 13th, in the Town Hall, Colchester, Mr A J Martin, M Inst C E will discuss the question of sewage and its disposal Admission to these lectures is free

University of Manchester Appeal —The monotony of the appeals reaching us from educational and benevolent institutions throughout the country is pleasantly varied by the novel prospectus entitled "Lancashire Development Unlimited" just issued by the University of Manchester For a month Manchester and the towns in its sphere of influence are to ring with the cry, "Invest in your University" In order to raise the £500,000 of new capital needed to maintain and develop the University an altogether original procedure is being adopted Designed to appeal principally to prosperous business firms, many of which have already become subscribers, the requirements of the University are set out in the terminology of a company in which the public are invited to take shares, non redeemable, and bearing no pecuniary interest, and thus provide new capital amounting to £500 000 It *offers*, on behalf of the University, 425 000 cumulative ordinary bonds of £1 each, and 1 500,000 cumulative participating people's bonds of 1s each The terms are "On application as much as possible, on allotment, may be spread over three years at the option of subscriber" All citizens are invited to equip, endow, and enrich the work of the University, which touches life in all its phases, and are urged not to miss this "rare opportunity for a richly paying investment in the unlimited wealth of the human mind" Dealing with the profits and advantages to the investor, the prospectus refers to Lancashire's great cotton industry and to the health of her people as her first interest The prospectus states that the faculties of medicine, surgery, and public health are constantly at work to ensure that hospitals are staffed with men of the highest competence, so that the child of the Lancashire weaver can get the same skilled treatment as the child of the millionaire The chief faculties touch the lives of all the people at every point Of the sum required £171,000 will *be absorbed by various developments* and extensions already decided upon The war services of the University are on record, and with the return of peace it is hoped that "the new capital now issued for public subscription will enable the University to perform its appointed task of organising and leading our great county in the works of *peace*" The *prospectus concludes* "You are earnestly invited to have a personal share in the development of Lancashire" Subscriptions may be sent to the organising secretary, Mr G A Marriott 9, Albert square, Manchester

A **reunion** dinner of all the ladies and gentlemen who have served the 1st London (City of London) General Hospital (including its sections and auxiliaries) will be held on Wednesday, May 12th, at 7 30 P M, in the Wharncliffe Rooms, Hotel Great Central, Marylebone road, London, N W, to be followed by an informal dance Evening or mess dress will be worn Tickets price 1 guinea, can be obtained before May 7th from the honorary secretary, Lieutenant Colonel W McAdam Eccles, 124, Harley street, W 1

Edward Hain Memorial Cottage Hospital, St Ives —The shareholders of Edward Hain Steamship Company and Lady Hain have given and endowed a cottage hospital at St Ives, Cornwall, as a memorial to the late Captain Edward Hain, killed at Gallipoli A large house has been purchased and fitted up as a cottage hospital and convalescent home to accommodate ten patients £10 000 have been invested as an endowment fund, which will give an income of £500 per annum The institution was formally opened on April 8th by Lady Hain, in the presence of a large gathering

Winsley Sanatorium, Bath —The annual report of this institution for 1919 states that during the year 457 patients were admitted, compared with 500 in 1918 The average stay of each was 86 days against 77 in the preceding *year The results of the treatment continued to be very* satisfactory The income amounted to £10,815, and the expenditure was £10,942 The committee anticipates that the sanatorium will be able to accommodate a greater number of patients in the future

Sherborne (Dorset) Hospital —The annual meeting of the friends of the Yeatman Hospital was recently held The financial statement showed the annual income to be about £1500 per annum, whereas the expenditure was £4000, consequently a special subcommittee had reported that unless new sources of revenue were devised *the hospital must be totally or partially closed* It was *decided that, with the exception of* old age pensioners, all in patients *should* be charged *from 7s 6d* weekly and out *patients should pay 1s for each visit*

The Anglo American University Library for Central Europe —*A preliminary statement has been issued* by Professor Gilbert Murray, Mr Arnold Rowntree, and the Rev William Temple, acting as trustees designed to call earnest attention to a scheme for establishing in Central Europe under British and American auspices, libraries of recent English and American works, on gift or loan, which are indispensable to university teachers The origin of the scheme may be *traced to the relief work in Central Europe* conducted by the English and American Society of Friends, by whom the privations of university teachers have been brought to attention Owing to the unfavourable rate of exchange and the high cost of living the prices of recent English and American works on philosophy, science, and belles *lettres* have *made it impossible for* the universities of Central Europe to keep in touch with English and American thought (For example, 10s books cost an equivalent of more than £9 in Germany and more than £30 in Austria) As a consequence the scholars in these countries find themselves cut off from access to books printed in English since 1914 The object in view *in forming the Anglo American* library is two fold, the promoters aim at relieving the hunger of mind, while promoting that reconciliation of spirit which can only follow on the free interchange of ideas The libraries, which will be organised on a broad non political, non sectarian basis, so as to enlist the widest possible cooperation, will supply on loan books needed by the faculties of the different universities in *Central Europe* They will be under the charge of British and American representatives, and committees of the foreign universities will be asked to superintend the local administration Lord Bryce, Lord Robert Cecil, and other leading public men have promised their coöperation in carrying it out In *addition to the trustees* mentioned above a consultative committee of British and American university men will be formed as soon as possible With such assistance little difficulty need be anticipated in securing the necessary financial support Professor Everett Skillings, of Middlebury College Vermont, U S A, is leaving shortly for the Continent to confer with the university authorities *there* The preliminary statement closes thus —

> By taking the initiative in extending the hand of fellowship to colleagues in former enemy countries British and American scholars are seizing a timely opportunity of helping to heal the wounds of the war and of exemplifying in a practical and convincing way the true international mind

Mr B M. Headicar, librarian of the London School of Economics (University of London), Clare Market, London, W C 2, is acting as Secretary of the Library, and all communications may be sent to him at that address

ROYAL NATIONAL HOSPITAL FOR CONSUMPTION, VENTNOR.—The fifty-first annual general meeting of the governors of this hospital will be held at 33, Portland-place, London, W., on Monday, April 26th, at 4 P.M., the Right Hon. J. E. B. Seely in the chair.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL.—A course of post-graduate lectures on syphilis is being given by various members of the staff of King's College Hospital during the present year. On Friday, April 23rd, at 9.15 P.M., Sir StClair Thomson will speak on Syphilis of the Throat and Larynx.

AT the monthly meeting of Fellows of the Royal Faculty of Physicians and Surgeons of Glasgow, held on April 12th, Dr. James Alexander Adams was elected representative to the General Medical Council for the period of five years. Dr. Adams succeeds Dr. D. N. Knox, who has resigned on the ground of ill-health after holding office for 12 years.

THE annual medical meeting of the Society for the Propagation of the Gospel in Foreign Parts will be held at 8 P.M. on April 21st, in the Central Hall, Westminster, Dr. S. Russell Wells in the chair, when Rev. F. G. Hodder-Williams, M.B., B.S., Fellow of Allahabad University, will speak.

ROYAL MICROSCOPICAL SOCIETY.—This society, in conjunction with the Optical Society and the Faraday Society, is holding a discussion on the Mechanical Design and Optics of the Microscope at 20, Hanover-square, London, W., on Wednesday, April 21st, from 7 to 10 P.M. Professor John Eyre will preside, and Mr. J. E. Barnard, Dr. W. Rosenhain, and Professor A. E. Conrady, among others, will take part.

ROYAL ARMY TEMPERANCE ASSOCIATION.—The twenty-fifth annual meeting and conference of this association will take place at the Caxton Hall, Westminster, on May 4th. At the annual conference of regimental delegates and male friends, at 11 A.M., the chair will be taken by Lord Horne, and the speakers on "Alcohol in our life to-day" will include Dr. G. Basil Price and Mr. Arthur Evans.

INFLUENZA AND ENCEPHALITIS LETHARGICA IN SWITZERLAND.—In December, 1919, only 511 cases of influenza were medically notified in Switzerland (population, 4.000,000). In January, 1920, already 13,162, in February 83,008. In February, 1920, 440 cases of encephalitis lethargica occurred. The epidemic of influenza has almost ceased, that of lethargic encephalitis has greatly decreased. The number of deaths is not yet officially notified.

KING'S COLLEGE, LONDON, OLD STUDENTS' ASSOCIATION.—At a general meeting of old students held recently at King's College, Strand, it was decided to form an association for the purpose of promoting social intercourse and of keeping the members in touch with their old college. It is hoped to include students from all faculties and the subscription of 10*s*. 6*d*. per annum will include the *King's College Review*. Further particulars and forms of application for membership may be obtained from the honorary secretary, Miss M. A. W. Fairlie, 3, St. Julian's Farm-road, W. Norwood, S.E. 27.

LONDON AND COUNTIES MEDICAL PROTECTION SOCIETY.—The annual general meeting of this society was held at the offices, 32, Craven-street, Strand, London, on March 17th, when the annual report of the council, which showed both an increase of membership and a strengthened financial position, was presented. The total membership of the society on Dec. 31st, 1919, amounted to 5688, and during the year 65 members died, 121 resigned, and 689 were elected. The funds of the society increased from a surplus balance of £23,955 4*s*. 4*d*. in December, 1918, as compared with a balance of £25,825 11*s*. 1*d*. on the corresponding date of 1919. The council refer to the loss sustained by the deaths of a distinguished vice-president in Sir William Osler and a valued member of council in Dr. T. W. Atkinson.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST: PAYMENTS BY PATIENTS.—At the annual court of governors of this hospital the chairman stated that although the financial position at the end of 1919 might be considered satisfactory, the outlook for the present year was by no means free from anxiety, particularly in view of the urgent need of structural improvements. The annual expenditure had risen from £14,000 in 1914 to £28,000 last year, and it was feared that in the coming year it would be still further increased. It was necessary to raise a substantial sum of money, and the committee had considered the desirability of trying to get some contributions from the patients. A resolution was passed giving the committee power to make such a charge as it might consider to be reasonable.

QUEEN VICTORIA CONVALESCENT HOME, DURDHAM DOWNS.—The annual report of this institution just issued states that from July, 1916, to July, 1919, the home was occupied by military patients, 1594 being admitted for an average stay of one month. The home has recently been thoroughly renovated at a cost of £2679, and will be ready for the reception of patients on May 1st. The committee appeals for £5000 to extend the building, and to provide additional accommodation for ten men and ten women. £1700 have been received, and it is hoped that the balance will shortly be subscribed.

THE CHEMISTS' EXHIBITION.—A visit to this exhibition, which was opened on April 12th at the Northampton Institute, Clerkenwell, left the impression that pharmacists and druggists and others related to the calling were serving well in the interests of the medical profession. There were some excellent specimens of fine drugs, chiefly synthetics and alkaloids, shown, but a feature of this year's collection was a profusion of perfume exhibits. It would appear that this industry is growing rapidly in this country, replacing, probably, foreign productions. The two halls were well stocked with interesting products, and the stalls were attractively arranged. That these occasions continue to receive the support of exhibitor and visitor alike is obvious from the fact that this is the twenty-first of the series, though gaps were caused, of course, during the years of the war. The organisers are the proprietors of the *British and Colonial Pharmacist* newspaper. The exhibition closed on April 16th.

IN the newspaper reports of the recent outbreak of fire at St. Dunstan's College for Blinded Soldiers, Regent's Park, reference has been made to the excellent manner in which the blinded men and their nurses escaped from the burning building. The St. Dunstan's authorities have given the question of prompt escape from their various buildings in case of fire their constant and earnest attention, and have spent considerable sums of money in providing suitable emergency exits, external staircases, and other fire escapes, for each of the homes in which they are interested. These arrangements have been efficiently carried out by and in consultation with Messrs. Merryweather and Sons, Greenwich and London, who have also instituted a system of periodical inspection of the fire extinguishing and escape arrangements. The blinded soldiers and the nurses are regularly drilled, and the wisdom of these measures was demonstrated at the recent fire.

Parliamentary Intelligence.

HOUSE OF COMMONS.

MONDAY, APRIL 12TH.

St. Luke's Hospital, Bradford.

Mr. MYERS asked the Minister of Health if his attention had been called to the agreement made between the Bradford corporation and the Bradford board of guardians in respect of the utilising of St. Luke's Hospital as a municipal general hospital; whether he was aware that this arrangement would enable the Bradford corporation to treat the sick, irrespective of their economic circumstances, and avoid the stigma attached to Poor-law treatment; whether the Ministry of Health was prepared to encourage and assist the project; and, if so, would he inquire into the circumstances prevailing in his department which were stated to be causing delay in putting the scheme into operation.—Dr. ADDISON replied: The scheme to which the honourable Member refers was approved by me last month.

Mr. LYLE: Will the consent of the Ministry of Health be extended to other local authorities putting forward similar proposals, and does this step agree with the policy enunciated in February, 1919, in this House and elsewhere? Is the right honourable gentleman now in a position to make a statement on the policy of the department in respect to voluntary hospitals?—The SPEAKER: The honourable Member had better give notice of that question.

Nurses and 1914 Star.

Lieutenant-Colonel FREMANTLE asked the Secretary for War whether nurses sent to Malta on active service in 1915 were ineligible for the 1915 medal, while nurses serving in Alexandria under similar conditions were entitled to it; and whether there were any reasons, other than those of administrative convenience, why equal services in Malta should not be equally recognised.—Mr. CHURCHILL replied: Service on the establishment of a unit in a theatre of war is essential to qualify for the award of the 1914-15 Star. Malta was not a theatre of war and nurses who served there in 1915 are consequently not eligible for the Star.

Obituary.

ALBERT JOHN CHALMERS M D VICT & LIVERP, F R C S ENG D P H

NEWS reached London last week that Dr A J Chalmers died of acute infective jaundice in the General Hospital at Calcutta on April 5th He was born at Manchester in 1870, son of Rev James Chalmers, M A, and was educated at Manchester Grammar School and University College, Liverpool Qualifying in 1890, he held the Holt Fellowship of University College, Liverpool, before entering the West African Medical Service, acquiring in his four years on the Gold Coast that zeal for tropical medicine which lasted throughout his life In 1901 he accepted a call to Ceylon, and for the next ten years was registrar at the Colombo Medical College, where he lectured on pathology and animal parasitology and had the satisfaction of witnessing the development of the College into one of the principal teaching institutions in the East After a period of service with the Pellagra Field Commission he became, in 1913, director of the Wellcome Tropical Research Laboratories at Khartoum, a position from which he was taking a well earned study holiday at the time of his early death Chalmers was an enthusiast and a never tiring worker, whose literary output was very large, as witness the 2500 pages of the third edition of the 'Manual of Tropical Medicine,' in every part of which he collaborated with Castellani His work on madura foot and on tropical skin diseases in general is of permanent value, and tropical medicine has lost in him one of its most faithful servants A loyal friend and a generous colleague, Dr Chalmers was also a popular practitioner when the opportunity was open to him in Colombo In 1911 he received the Coronation Medal, and he also held a medal and clasp for the Ashanti Expedition of 1900, but his chief honours lie in the work which he did and the work which he inspired others to do Dr Chalmers leaves a widow, daughter of the late Edwin Cannington, J P but no children

HECTOR TREUB,

PROFESSOR OF GYNÆCOLOGY IN THE UNIVERSITY OF AMSTERDAM

Professor Treub s death last week in his sixty fourth year, removes one of the best known continental gynæcologists Three sons were born to Burgomaster Treub, of Voorschoten, near Leyden The eldest Melchior, came to be professor of botany, and founded the important Institute of Tropical Botany on the island of Java, the youngest, Willem, also at one time professor in Amsterdam became an authority on sociology and a leading member of the Lower Chamber, while Hector, at first in Leyden, transferred later to a professorial chair at Amsterdam, established his reputation as the leading authority on diseases of women in Holland, celebrating his 25 years jubilee as professor in 1912 Treub was a prolific writer in Dutch medical journals on his special subject, his first published work in the domain of operative gynæcology dating from 1885, later extending over extra uterine pregnancy, fibroma, sterility, retroflexion, and enteroptosis, as well as such general medical topics as the civil rights of practitioners, reformed clothing for women, and the co education of medical students In two little books on medico political subjects he collaborated with A Tak and C Winkler He was for 20 years co editor of the *Geneeskundige Bladen*, published in Haarlem

ALEXANDER HODGKINSON, M D MANITOBA M B, CH B VICT, M SC VICT

SURGEON TO THE WARRINGTON INFIRMARY

Dr A Hodgkinson, who died at his home at Ivy Lodge, Warrington, on April 6th, after four days illness with pneumonia, was in his forty third year In 1898 he obtained a B Sc degree in the Victoria University with first class honours in zoology, proceeding to the M Sc in 1901 He gained the Dauntesey Entrance Medical Scholarship and the Dalton Natural History Scholarship After taking his M B, Ch B with honours he spent some time in resident hospital appointments at Warrington Infirmary and elsewhere, and then settled in practice in Warrington, where he had a large connexion At various times he held visiting posts at the Warrington Union Infirmary, the Warrington General Infirmary, and the Whitecross Military Hospital He was at all times deeply interested in natural science and for a time lectured at the Warrington Technical School on this subject It was a surprise to many that he did not adopt a purely scientific career, for which in his student days he appeared destined In 1914 he proceeded to the ad eundem M D degree of the University of Manitoba

THE LATE DR T W. LAMBERT —Thomas Wilson Lambert, who died suddenly at Mentone on March 31st in his fifty eighth year, was a native of Yorkshire, and was educated at Cheltenham and at Pembroke College, Cambridge After qualifying with the M R C S Eng, L R C P Lond in 1889, he held house appointments at St Thomas's Hospital, where he had received his medical training and in the following year graduated M B, Ch B at Cambridge University Subsequently he was appointed medical officer to the Canadian Pacific Railway, and to the Royal Inland Hospital, Kamloops For many years he held a prominent position in Columbia, and in 1897 was elected vice president of the College of Physicians and Surgeons of British Columbia holding the office of president 1898 99 On his return to Europe he spent part of his time in England and part in Norway, and numbered among his friends in the latter country Henrik Ibsen During the war he acted as director of the Scandinavian section of the Foreign Press Department at the War Office Dr Lambert was an ardent sportsman, and was the author of a book on "Fishing in British Columbia" At Cambridge he was a famous oar, rowing for the University against Oxford on several occasions

The Services.

R A M C PAY IN INDIA

THE new scale of grade pay for officers of the Royal Army Medical Corps in India has effect from July 1st 1919 The scale is as follows —

	Rs per month
Lieutenants	550
Captain on promotion	650
Captain after 5 years total service	700
Captain after 7 years total service	750
Captain after 10 years total service	850
Major on promotion	950
Major after 3 years as such	1050
Lieutenant Colonel	1350
Lieutenant Colonel after 3 years as such	1500

Charge allowances are admissible in addition Army of occupation bonus is not paid with these rates but where the old rates with the bonus are more favourable they may be retained until the general abolition of the bonus or until promotion whichever is earlier These rates of pay are provisional and will be subject to revision when permanent rates of pay for the medical services in India are fixed The new rates of pay in the Indian Medical Service were published in THE LANCET of May 3rd 1919, p 764 and may be referred to for purposes of comparison

ROYAL NAVAL MEDICAL SERVICE

Surgeon Lieutenants to be Surgeon Lieutenant Commanders H B Parker J L Priston R I Quinton M J Aitken, J A Maxwell M S Moore W G Thwaytes C E Greeson, W F Beattie H W Fitzroy Williams F E Fitzmaurice, T J O Riordan, J C Kelly, J M Horan, G M M Graham, F C Hunot

ARMY MEDICAL SERVICE

Major Gens J Thomson and A A Sutton and Cols T D Alexander and F R Buswell retire on retired pay

Major Gen J B Wilson from half pay list is restored to the establishment

Col L P More is placed on half pay

Temp Col A Carless (Major, R A M C, T F) relinquishes his temporary commission on re posting

TERRITORIAL FORCE

Col C P Oliver, K H P, from T F Reserve, to be Colonel

ROYAL ARMY MEDICAL CORPS.

Major E. Gibbon to be temporary Lieutenant-Colonel whilst specially employed.

Temp. Capt. (acting Major) F. R. Kirkham to be acting Lieutenant-Colonel.

The undermentioned Captains retire receiving a gratuity: G. E. Dyas, J. Y. Moore.

Capt. D. S. Buist is restored to the establishment.

Lieutenants (temporary Captains) to be Captains: A. H. Clarke, G. G. Drummond, D. R. Hennessy.

Temp. Lieut. W. N. Leak to be temporary Captain.

Officers relinquishing their commissions:—Temp. Lieut.-Col. L. W. Rolleston on ceasing to serve with the County of Middlesex War Hospital (retains the rank of Lieutenant-Colonel); Temp. Major (acting Lieut.-Col.) C. M. Row is granted the rank of Lieutenant-Colonel. Temporary Captains granted the rank of Major: D. C. Taylor, H. B. Wilson, C. Roche. Temporary Captains retaining the rank of Captain: J. H. Campain, P. H. Day, F. A. Stokes, G. A. Hayman, C. L. S. James, H. Spong, G. H. Roberts, W. A. Todd, A. Lundie, W. E. K. Coles, G. R. E. Colquhoun, F. R. Martin, H. M. Berry, H. E. C. Fox, C. H. Broomhead, T. Hamilton, E. J. Manning, W. R. Reeds, E. Evans, E. R. Barton, J. I. F. Knight, L. W. Jones, B. Muir, T. F. Pugh, F. A. Godson, A. H. Macklin, T. S. Forrest, R. E. Illingworth, F. King, W. A. Cochrane, J. C. Ryan, H. A. Hancock, A. H. Ernst, J. L. Callaghan, H. F. T. Chambers, T. W. Pattinson, H. W. Catto, A. J. A. Peters, S. E. Elphick, C. P. S. Allingham, C. H. Cox, H. J. Cotter, T. A. Beddy, J. B. Thackeray, W. A. Mahon, H. Baird, C. J. Morton, G. A. Crowe, R. Svensson. Temp. Hon. Capt. J. V. Ricci retains the honorary rank of Captain. Temp. Lieuts. W. M. Bristow and J. Campbell (retain the rank of Lieutenant).

TERRITORIAL FORCE.

Capt. (acting Lieut.-Col.) L. D. B. Cogan relinquishes the acting rank of Lieutenant-Colonel on ceasing to be specially employed.

Major T. L. Fennell, T.D., to be acting Lieutenant-Colonel whilst specially employed.

1st London General Hospital: Lieut.-Col. Sir A. E. Garrod is retired under paragraph 116, T.F. Regulations, and is granted the honorary rank of Colonel.

Major L. B. Rawling is seconded for duty with the 4th London General Hospital.

2nd London General Hospital: Major L. E. Shaw is retired under paragraph 116, T.F. Regulations.

5th Northern General Hospital: Capt. E. W. Holyoak is restored to the establishment.

ROYAL AIR FORCE.

Medical Branch.—Capts. D. S. Stevenson (acting Major), S. A. Clark, and A. K. Soutar are transferred to the unemployed list.

THE HONOURS LIST.

The following additions should be made to the list of promotions in and appointments to the Most Excellent Order of the British Empire, published in The Lancet of April 10th, p. 839:—

C.B.E.—E. D. Maddick, O.B.E.

O.B.E.—Lt.-Col. H. M. Brownfield.

M.B.E.—W. J. Durant; J. W. Mason.

BOOKS, ETC., RECEIVED.

Appleton, D., and Co., London and New York.
The Diseases of Infancy and Childhood. By L. E. Holt, M.D., and J. Howland, M.D. 7th ed. Pp. 1180. 35*s.*

Arnold, Edward, London.
Dr. G. Herschell's Text-book of Indigestion. Revised and re-written by A. Abrahams, O.B.E., M.D. 4th ed. Pp. 228. 10*s.* 6*d.*
Diagnosis of Nervous Disease. By Sir James Purves Stewart, K.C.M.G., M.D. 5th ed., revised and enlarged. Pp. 584. 30*s.*

Bale, J., Sons, and Danielsson, London.
An Atlas of the Primary and Cutaneous Lesions of Acquired Syphilis in the Male. By Major C. F. White, R.A.M.C., and Dr. W. H. Brown. With Foreword by Lieut.-Gen. Sir T. H. J. C. Goodwin, Director-General, A.M.S. Pp. 32 and plates. 27*s.* 6*d.*

Churchill, J. and A., London.
Principles of Human Physiology. By Prof. E. H. Starling, C.M.G., F.R.S. 3rd ed. Pp. 1315. 26*s.*
Sight Testing Made Easy. By W. Wright Hardwicke, M.D. 4th ed. Pp. 80. 5*s.*
Gynæcology for Students and Practitioners. By T. W. Eden, Major R.A.M.C., and C. Lockyer, M.D., F.R.C.P. 2nd ed. Pp. 928. 38*s.*

Frowde, Henry, and Hodder and Stoughton, London.
Functional Nerve Disease: an Epitome of War Experience for the Practitioner. Edited by H. C. Miller, M.D. Pp. 208. 8*s.* 6*d.*
Cunningham's Manual of Practical Anatomy. Revised and edited by Prof. A. Robinson. 7th ed. Vol. II. Pp. 524. 12*s.* 6*d.*
A Manual of Venereal Diseases for Students. By L. W. Harrison, D.S.O., M.B., Ch.B. Pp. 360. 16*s.*
Sympathetic Nervous Symptom in Disease. By W. Langdon Brown, M.D. Cantab. Pp. 161. 10*s.* 6*d.*

Kimpton, H., London.
Handbook of Diseases of the Rectum. By L. J. Hirschman, M.D. 3rd ed. Pp. 378. 30*s.*
The After-treatment of Surgical Patients. By W. Bartlett, A.M., M.D., and Collaborators. 2 vols. Pp. 1066. £3.
The Systematic Development of X Ray Plates and Films. By L. Wendell, B.S., D.D.S. Pp. 78. 12*s.*

Lewis, H. K., and Co., London.
The Link Between the Practitioner and the Laboratory. By C. Fletcher, M.B., B.S., and H. McLean, B.C. Cantab. Pp. 91. 4*s.* 6*d.*
The Sexual Disabilities of Man and their Treatment and Prevention. By A. Cooper, Consulting Physician to the Westminster General Dispensary. 4th ed. Pp. 266. 7*s.* 6*d.*

Lippincott, J. B., Company, Philadelphia and London.
Psychology from the Standpoint of the Behaviorist. By Prof. J. B. Watson. Pp. 429. 10*s.* 6*d.*
The Physical Basis of Heredity. By Prof. T. H. Morgan. Pp. 305. 10*s.* 6*d.*
Inbreeding and Outbreeding. By E. M. East, Ph.D., and D. F. Jones, Sc.D. Pp. 285. 10*s.* 6*d.*

Longmans, Green, and Co., London.
Tuberculosis and Public Health. By H. Hyslop Thomson, M.D., D.P.H. Pp. 104. 5*s.*

Macdougall, A., Mitchell-street, Glasgow.
With the 1st Lowland Field Ambulance in Gallipoli. By Col. G. H. Edington, A.M.S. (T.F.). Pp. 72.

Maloine, A., et Fils, Paris.
Chapitres Choisis de Chirurgie. Par G. L. Rejard, Ancien Médecin Aide Major. Avec une Préface de M. O. Jacob, Médecin-Inspecteur. Pp. 430. 20 fr.
La Génération Humaine. Par Dr. G.-J. Witkowski. In-8, 108 fig., 3 planches en couleurs, découpées et superposées. 9th éd., revue et corrigée. Pp. 224. 22 fr.
Santé, Comment se bien porter (D'Après L'enseignement Théosophique). Par Dr. A. Auvard. Pp. 254. 4.50 fr.
Carnet Calendrier de Traitement Anti-syphilitique. Par M. le Dr. Gougerot. Pp. 16. 1 fr.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE 1, Wimpole-street, W.

Tuesday, April 20th.

GENERAL MEETING OF FELLOWS: at 5 P.M.
Ballot for Election to the Fellowship. (Names already circulated.

MEETINGS OF SECTIONS.

Tuesday, April 20th.

THERAPEUTICS AND PHARMACOLOGY (Hon. Secretaries—Philip Hamill, Douglas Cow): at 4.30 P.M.
Dr. Ransom: Action of Strontium on Frog's Heart.
Dr. G. Graham: Source of Uric Acid excreted in Urine after Administration of Atophan.

PATHOLOGY (Hon. Secretaries—J. A. Murray, Cecil Price-Jones): at 8.30 P.M.
Annual General Meeting—Election of Officers and Council for 1920–1921.
Dr. J. A. Murray: Autologous Grafting of an Adenocarcinoma of the Rabbit's Uterus.
Dr. Topley: The Site of Formation of Antibodies.
Dr. Lyon Smith: Direct Hæmolysis; a Test for Bacterial Toxins, and for the Quantitative Estimation of Doses of Bacterial Vaccines.

Wednesday, April 21st.

HISTORY OF MEDICINE (Hon. Secretaries—Arnold Chaplin, F. G. Crookshank): at 5 P.M.
Dr. Arnold Chaplin: The History of Medical Education at the Universities of Oxford and Cambridge.
Madame Panayotatou, Ph.D.: Baths and Bathing in Ancient Greece.

Friday, April 23rd.

STUDY OF DISEASE IN CHILDREN (Hon. Secretaries—E. A. Cockayne, H. C. Cameron, C. P. Lapage): at 4.30 P.M.
Papers:
Dr. D. H. Paterson: Three Cases of Renal Dwarfism.
Dr. Parkes Weber: Remarkable Example of Suprarenal Tumour in a Child, of the Robert Hutchison Type (?).

EPIDEMIOLOGY AND STATE MEDICINE (Hon. Secretaries—William Butler, Major Greenwood): at 8.30 P.M.
Dr. E. W. Goodall: Typhus in Poland, 1916–1919.

Those Members of the Section who wish to attend the dinner at the Welbeck Palace Hotel, at 7 P.M., are requested to notify Dr. Major Greenwood, Lister Institute, Chelsea Gardens, S.W. 1, not later than April 21st.

ILLUMINATING ENGINEERING SOCIETY, at the Royal Society of Arts, 18, John-street, Adelphi, W.C.
Tuesday, April 20th.—8 P.M., Discussion on The Lighting of Churches, opened by Mr. J. Darch.

CHELSEA CLINICAL SOCIETY, in St. George's Hospital Medical School.
Tuesday, April 20th.—8.30 P.M., Paper:—Dr. K. Eckenstein: Experiences of the French Medical Service at the Front (illustrated by lantern slides).

LONDON DERMATOLOGICAL SOCIETY, St. John's Hospital, 49, Leicester-square, W.C.
Tuesday, April 20th.—4.30 P.M., Pathological Specimens. Cases sent for Consultation. Clinical Cases will be shown by Dr. J. L. Bunch, Dr. W. Griffith, Dr. E. J. D. Mitchell, Dr. W. K. Sibley, Dr. Morrison, Dr. Eva White, and Dr. S. Kapoor.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST GRADUATE COLLEGE, West London Hospital Hammersmith W

Monday, April 19th —2 P M Mr MacDonald Surgical Out patients 5 P M, Dr A Saunders *Parenchymatous and Mixed Nephritis*

Tuesday —10 A M Dr Robinson Gynæcological Operations 5 P M Dr Pernet Pityriasis Rosea

Wednesday —10 A M Mr Banks Davis Operations of the Throat Nose and Ear 5 P M, Mr Addison Acute Infective Osteomyelitis

Thursday —10 30 A M Dr Simson Gynæcological Demonstration 5 P M Mr Page Anæsthetics

Friday —2 P M Dr Morton X Ray Department 5 P M Dr Burnford Clinical Lecture with Cases

Saturday —12 noon Mr Sinclair Surgical Anatomy of the Abdomen 2 P M Dr Beddard Visit to Medical Wards

Daily —10 A M Ward Visits 2 P M, In patient and Out patient Clinics and Operations

KING S COLLEGE HOSPITAL MEDICAL SCHOOL (University of London)

A Course of Post Graduate Lectures on Syphilis is being given by various members of the staff of King s College Hospital during the present year

Friday April 23rd —9 15 P M, Sir StClair Thomson Syphilis of the Throat Larynx &c

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton S W

Monday, April 19th —2 P M Dr Melville X Ray Department

Tuesday —2 P M, Dr D Grant Throat Department 2 30 P M Demonstration —Dr Wingfield Chronic Fibroid Cases

Wednesday —10 30 A M Dr Punch Demonstration of Museum Specimens 2 P M Dr Gosse Cardiographic Department 2 30 P M, Demonstration —Dr Wall Medium Cases

Thursday —10 30 A M Dr Burrell Artificial Pneumothorax 2 30 P M Demonstration —Dr Burrell Medium Cases

Friday —2 P M, Dr Melville X Ray Department 2 30 P M Demonstration —Dr Punch Medium Cases

Saturday —1 P M Dr Batty Shaw Special Demonstration in the Out-patient Department

UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE POST GRADUATE LECTURES at the Sheffield Royal Hospital

Wednesday, April 21st —4 P M Prof Hall Encephalitis Lethargica

MANCHESTER ROYAL INFIRMARY POST GRADUATE CLINIC

Tuesday April 20th —4 30 P M Lecture —Mr B J Rodway Influence of Oral and Dental Lesions on General Medicine

SALFORD ROYAL HOSPITAL AND ANCOATS HOSPITAL POST GRADUATE DEMONSTRATIONS at the two Hospitals alternately

Thursday April 22nd —4 30 P M, Mr Jefferson Neuralgia (At Salford Royal Hospital)

Communications, Letters, &c , to the Editor have been received from—

A.—Mr J Adams Lond

B —Dr J L Brownlie Glasgow Lady Barrett Lond Dr C F Bailey Brighton Dr C Bolton Lond Dr H K Brade Birks Wye Board of Control Lond Sec of Sir J Broadbent Bart Lond Board of *Education*, Lond Mr H W Bayly Lond Dr A D Bigland Liverpool Dr H C Bazett Oxford Dr A Balfour Lond Dr E Bramwell Edinburgh Lord Blyth Lond Sir E N Burnett Lond

C —Chadwick Trust Lond Dr P J Cammidge, Lond Dr A Castellani Lond Prof E L Collis Cardiff Chicago School of Sanitary Instruction

D —Dr H Drinkwater, Wrexham Dr T B Davies Lond Department of Scientific and Industrial Research Lond Sec of Mr P Dalton Galloway Duty and Discipline Movement Lond

F —Mr A G T Fisher Lond Dr D Firth Lond

G —Messrs G Glanidge and Co Bombay Dr H O Gunewardene Lond Dr S R Gloyne Lond Gloucestershire Surgical Appliances Co Cheltenham

H —Dr I Harris Sheffield Hunterian Society, Lond Mr F Holland Lond Harveian Society of London Harrogate Royal Baths Gen Manager of

J —*Journal of the American Medical Association Journal of Industrial Hygiene* Boston

K.—Mr N C King Lond King s College Hospital Medical School Lond

L.—Mr J P Lockhart Mummery Lond Dr G C Low Lond Dr F Langmead Lond Dr R B Low Lond Dr C Lillingston Gorleston

M —Ministry of Health, Lond Messrs Merryweather and Sons Lond Sir F Mott Lond Dr J B Mennell Lond Dr E M Magill Lond Metropolitan Asylums Board Lond, Clerk to Dr H L Murray Liverpool

N.—National Health Week Committee Lond National Safety Council Chicago

P —Mrs M Prentice Lond Dr C Porter Lond Capt A E H Pinch Lond Peoples Refreshment House Association Lond

R —Royal Institution of Great Britain Lond Dr B Robinson New York Dr J D Rolleston Lond Research Defence Society Lond Royal Society of Arts Lond Royal Army Temperance Association Lond Gen Sec of

S —Save the Children Fund Lond Dr S H Stewart Glenlomond Mr A T Scott Lond Mr R E Smith Barry Dr F D Saner Lond Dr J J Scanlan Lond.

T —Dr Wu Lien Teh Peking Dr A H Thompson Lond Mr C F T Thompson Lond Mr F T Thompson Lond

U —University of Glasgow, Principal of

W —Dr J R Whitwell Melton, Dr K Walker Lond

Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, W C 2

Appointments.

Bastard H R L R C P Lond M R C S has been *appointed* Medical Officer for the Bow District by the Crediton Board of Guardians

Colmer V L R C P Lond M R C S Honorary Surgeon to the Tavistock Hospital Devon

Day C D, L M S S A District Medical Officer by the Dorchester Board of Guardians

Groves E W Hey M D M S Lond F R C S Eng External Examiner in Surgery of the London University

Jewell W H M D B S Lond D P H Cantab Surgeon for Ear Nose and Throat to the Royal Hospital Richmond

Khan M M M D B S Lond D P H Oxon Director of the Government Hospital for Diseases of the Skin and Venereal Diseases Teheran Persia

Lescher G F M C M B Cantab Assistant Physician at the Derbyshire Royal Infirmary

O Connor M M B B Ch B A O Irel School Medical Officer for Plymouth

Slesinger E G M S F R C S Assistant Surgeon to *Guy s Hospital*

Edward Hain Memorial Cottage Hospital St Ives Cornwall Nicholls J M L R C P Lond M R C S Matthew F C M D M Ch Edin F R C S Edin Best P L R C P M R C S L S A Rice J D, M B B Ch B A O R U I Smyth W A L R C P & S L M Edin Medical Officers Craze W C T L D S Glasg Honorary Dental Surgeon

Certifying Surgeons under the Factory and Workshop Acts Mackay G R E G M B M Ch Edin (Currie) Falkner H G M R C P L R C S Irel (Lynton) Nyhan C L R C P & S Edin L R F P S Glasg (Clonakilty)

Vacancies.

For further information refer to the advertisement columns

All Saints Hospital (for Genito-Urinary Diseases) 49-57 Vauxhall Bridge road Victoria S W—H S £100

Ashton under Lyne District Infirmary—Two Asst H S s £200

Barnsley Beckett Hospital—Jun H S £200

Barrow-in Furness North Lonsdale Hospital—Second Res H S £225

Belfast Mater Infirmorum Hospital—Hon P

Bethnal Green Infirmary—Asst Med Supt £400

Birkenhead Borough Hospital—Sen and Jun H S s £200 and £170

Birmingham City Fever Hospital Service—Asst M O £350

Birmingham City Hospital Little Bromwich—Med Supt £700

Birmingham Erdington Infirmary House and Children s Homes—Female Second Asst M O £275

Birmingham General Hospital—H S £125 H P and Cas H S £100 each Also Res Surg O £180

Birmingham West Heath Sanatorium—Med Supt £500

Birmingham Yardley road Sanatorium and Anti tuberculosis Centre—Second and Third Asst Res M O s £450 and £400

Bradford Children s Hospital—H S £180

Bridgend Glamorgan County Asylum—Jun Asst M O £350

Burnley County Borough—Asst M O £550

Burton-on Trent County Borough—Asst M O £500

Cairo Egyptian Government Ministry of Education—Professor of Pathology L E 1200-1400

Derby Derbyshire Royal Infirmary—Oph H S £200

Dorset County Council—Asst County M O £500

Evelina Hospital for Children Southwark S E—H S £160

Glasgow Bellahouston Hospital—Res M O £250

Glossop Dale Rural District Council—Joint M O H £600

Gloucestershire Royal Infirmary and Eye Institution—H P £175

Great Yarmouth County Borough—Asst M O H £500

Hereford County and City Mental Hospital—Second Asst M O £350

Hospital for Diseases of the Skin 71 Blackfriars road S E—Clin Asst

Hospital for Sick Children Great Ormond street London W C—Surg Registrar £700

Hounslow Heston and Isleworth Urban District Council—Asst M O H and Asst Sch M O £500

Huddersfield Royal Infirmary—Asst H S £150

Hull City Education Committee—Asst Sch M O £500

Hull Royal Infirmary—Senr H S £200 Also Cas H S £150

Inverness District Asylum—Jun Asst M O £250

Ipswich—Asst County M O H £500

Ipswich East Suffolk County Education Committee—Dent S £450

Leeds General Infirmary—Two H P s

Leeds Public Dispensary—Res M O £200

Leeds University—Demonstrator in Exp Phys £250

Lewisham Hospital—Second Asst M O £300

Lincoln Lindsey County Council—Female Asst M O £550

Liverpool West Derby Union Mill road Infirmary—Asst Res M O £363

London Hospital Whitechapel E—Surgical Registrar £365 Also Medical Registrar £365 Also Hon Dent S

London Lock Hospital Dean street Oxford street W and 283 Harrow-road Paddington W—Pathologist £500

London Temperance Hospital Hampstead road N W—Cas O £120

Loughborough and District General Hospital and Dispensary—Res H S £200

Macclesfield Cheshire County Asylum Parkside—Asst M O £350

Macclesfield General Infirmary—Res H S £200

Maidstone Kent County Ophthalmic Hospital—H S £250

Manchester Ancoats Hospital—H S £100 Also Res S O £200

Manchester County Asylum Prestwich—Asst M O £450

Manor House Hospital North End road Hampstead N W—H S and Asst Anæsth £150

Metropolitan Asylums Board, Infectious Hospitals Service.—Junr. Asst. M.O.'s. £515 6s.

Middlesbrough, North Ormesby Hospital.—Asst. H.S. £175.

Middlesbrough, North Riding Infirmary.—H.S. £200.

Newcastle-upon-Tyne, City Hospital for Infectious Diseases.—Res. Med Asst. £350.

Newcastle-upon-Tyne, Royal Victoria Infirmary.—Res. M.O. £350.

Newport, Mon., Royal Gwent Hospital.—Fourth Res. M.O. £180.

North Riding of Yorkshire County Council, Education Committee.—Asst. Sch. M.O. £500.

Norwich, Norfolk and Norwich Hospital.—Cas. O. £200.

Nottingham Education Committee.—Sch. Dent. £500.

Nottingham General Hospital.—Cas. H.S. £150.

Nottingham, Notts County Council.—Female Asst. Child Welfare M.O. and Asst. Sch. M.O. £500.

Oldham Royal Infirmary.—Third H.S. £200.

Poplar Hospital for Accidents, Poplar, E.—Asst. Res. S. £120.

Queen Charlotte's Lying-in Hospital, Marylebone-road, N.W.—Asst. M.O. £60.

Queen Mary's Hospital for East End, Stratford, E.—H.P.

Reading, Royal Berks Hospital.—Sen. Res. M.O. £350.

Roll of Honour Hospital for Children, 688, Harrow-road, W.—Hon. Asst. P. and H.S. £40.

Royal Eye Hospital, St. George's Circus, S.E.—Sen. H.S. £100. Also Clin. Assts.

Salford Royal Hospital.—H.S. £150.

Sheffield Royal Infirmary.—Two H.S's, one Ear, Nose, and Throat H.S. £150.

Southend Victoria Hospital, Southend-on-Sea.—H.S. £200

South London Hospital for Women, South Side, Clapham Common, S.W.—Female H.P. £100.

Stamford, Rutland, and General Infirmary, Stamford.—H.S. £200.

Stoke-on-Trent, North Staffordshire Infirmary.—H.S. £200.

Straits Settlements and Federated Malay States.—Thirty-three M.O.'s. $440 per month.

Swansea General and Eye Hospital.—Jun. H.S. £200.

Trowbridge, Wilts County Council.—Third Sch. Dent. £400.

Wakefield, Clayton Hospital.—Sen. and Jun. Res. H.S. £250 and £200.

Wallasey, Victoria Central Hospital and Wallasey Dispensary.—H.S. £250.

Wells Asylum, Somerset.—Sen. Asst. M.O., £400.

West End Hospital for Nervous Diseases, 73, Welbeck-street, W.—Hon. Med. Registrar.

West London Hospital, Hammersmith, W.—Asst. Anæsth.

West Riding County Council.—Sch. Med. Inspec. £500.

Woolwich Tuberculosis Dispensary, Maxey-road, Plumstead, S.E.—Asst. Tuberc. O. £500.

Worcester County and City Mental Hospital, Powick.—Deputy Supt. £450. Also Jun. Asst. M.O. £300.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshops Acts at Hebden Bridge, Liskeard, Markfield, Singleton, Stonehaven, Stornoway, and at Wolverhampton.

The Home Secretary gives notice of a vacancy for a Second Medical Referee under the Workmen's Compensation Act, 1906, for the Marylebone and West London (Brompton) County Courts. Applications should reach the Private Secretary, Home Office, not later than May 5th, 1920.

Births, Marriages, and Deaths.

BIRTHS.

ADAMS.—On April 6th, at a Nursing Home in Chiswick, the wife of Dr. J. Wroth Adams, of a son.

METHVEN.—On April 8th, at King's-avenue, Clapham Park, S.W., the wife of J. C. W. Methven, M.R.C.S., L.R.C.P., of a son.

TERRY.—On April 1st, at Barton-street, Gloucester, the wife of H. Cairns Terry, M.B., of a son.

WARNER.—On April 1st, at Rydal, Woodford Green, Essex, the wife of Dr. H. P. Warner, of a son.

WATERS.—On April 8th, at Cranmore, Lymington, the wife of Dr. J. P. F. Waters, Maudsley Neurological Hospital, London, of a son.

MARRIAGES.

ATTLEE—MACONOCHIE.—At St. Paul's Church, York Place, Edinburgh, on Thursday, April 8th, by the Very Rev. the Dean of Edinburgh, Wilfrid Attlee, M.D., of Eton, youngest son of the late John Attlee, of Dorking, to Emily Bridget, younger daughter of C. C. Maconochie, K.C., C.B.E., of Avontoun, Linlithgow.

LETHEM—LAWRENCE.—On April 3rd, at the Parish Church, Adlington, Lancashire, William Ashley Lethem, M.C., M.B., D.P.H., to Barbara, youngest daughter of the late James Lawrence, J.P., and Mrs. Lawrence, of Kilhey Court, Worthington, Wigan.

VOSPER—RUDKIN.—On April 7th, at St. John's Church, Wembley, Middlesex, Cecil Vosper, M.R.C.S., L.R.C.P., to Catherine Alwine, younger daughter of Frank Rudkin, of Sudbury, Harrow.

DEATHS.

BIGG.—At Chagford, Devon, on March 29th, Edward Bigg, M.A., B.C. Cantab., and M.R.C.S., L.R.C.P., aged 45.

CHALMERS—On April 5th, at Calcutta, Albert John Chalmers, M.D., F.R.C.S., Director of Wellcome Laboratories, Khartoum.

LAMBERT.—On March 31st, at Mentone, France, Thomas Wilson Lambert, M.D. Cantab. L.R.C.S., L.R.C.P., son of the late Joseph Lambert, Cottingham.

NASH—On April 8th, Walter Llewellyn Nash, M.R.C.S., F.S.A., aged 78 years.

TICHBORNE—On April 6th, at his residence, Madeley-road, Ealing, of pneumonia following influenza, John Tichborne, M.D. Dub., late S.M.O., Northern Nigeria, and late Captain, R.A.M.C.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

MEDICAL PROBLEMS OF LIFE ASSURANCE.[1]

BY T. D. LISTER, C.B.E., M.D. LOND.

THOSE of us who have duties in relation to accident and disease insurance have many questions other than medical questions to put to ourselves before we can give an opinion on any case before us. There are considerations of public health, of private character, of self-interest of classes and of individuals, that profoundly affect our decisions after we have had placed before us all the medical facts obtainable. Assurance problems demand of us that we shall never lose sight of the fact that the medical evidence is only one part of the whole evidence put before us. The medical part is certainly essential, but we have to form a judgment on the relative importance and inter-relation of the medical and the other facts.

Heredity alone opens up a number of problems that are by no means settled. We are far from differentiating between personal conditions that can be ignored if a person comes of long-lived stock and those which cannot be so ignored. We know very little about heredity, but we give impressions derived chiefly from our own experience. These are affected by our endeavours to hold the medical scales evenly in the assurance market between the buyer and the seller, the public and the office. This ignorance—I speak for myself—caused me once to try to conceive the assessment of a life as resembling an attempt to foretell the future course of a missile, of which we only observe the mass, direction, and speed for a short moment in its journey. This led me to the fanciful idea of vital-trajectories.

Vital-Trajectories.

An individual is conceived, and from that moment there is in existence a force, the resultant of a number of components, including the possible handicap of conceptional disease, that should convey the new body in a certain direction, to a certain distance. It will, bar accidents, "live," as we say, for a longer or shorter time. Accidents, including illnesses, may happen to stop its progress, either pre-natal or post-natal. In insurance we usually have to make a judgment long after birth, and after a brief examination, with insufficient data as to the past, and knowing nothing of the future, we presume to form an opinion as to a future history. Sometimes we can see the coming disaster, the crashing of the shell, more or less plainly; sometimes we have reason to fear its early occurrence from loss of momentum or what not; and often we see no reason why we should not advise a bet on its arriving at the limit of its range. This figure of speech could be pursued, through many variations, to enable us to use it to illustrate both seen and unseen obstacles in the way of the "life." It is the business of this society to endeavour to gather and diffuse knowledge of these obstacles to the smooth course of the body through life. We want to learn the effects produced by a clogging environment and habits, the damage done by passing through target-screens of acute disease occurring in its path, and the mode and date of the probable cessation of its flight. Some lives, as we all know, pass through attack after attack of acute disease, or accidents and operations, unimpeded, undamaged so far as we can see. Others have lost momentum permanently from slight affection before we see them. At the moment we can only endeavour, so far as heredity is concerned, to visualise the forces derived from the ancestry in a life before us, and the effect of the absence or the presence of hindrances to the full accomplishment of the span of life. To take tubercle, for example, a family history of recovered tubercle is sometimes as favourable a point in a proposer with a personal history of pleurisy with effusion, as the family history of deaths from tubercle is unfavourable.

With all the sources of error I have tried to suggest we have one great safeguard. That is, that in the head office at any rate, of an insurance company, we have to place lives in classes rather than to insure individuals. A fact to which I wish to call attention is that there are certain differences of practice among the offices. Perhaps, I should say, there are certain classes of risks which are more acceptable at some offices than at others, and some less. Most of us have heard, and perhaps said, "I don't like to insure such and such a malady."

Counsels of Perfection.

Here is a justification for the development of our work to endeavour to secure more uniformity of practice, but the very circumstances of life insurance preclude us from carrying out the counsels of perfection that have been urged upon us Ophthalmoscopy, otological observations, radiograms, have been recommended as preliminaries to insurance Our commercial friends will not accept them A proposer requires a policy, the office wants to sell him a contract The proposer must not be kept waiting, the office will not incur undue expense A force is introduced in this way which tends to lack of discrimination between the good and bad risks and to the broadening, fair or unfair, of classes of particular risks

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[1] Abridged from the presidential address to the Assurance Medical Society delivered on March 3rd, 1920.

What, for instance, is the actual experience of mortality of the "running ear"? Is it best to group such cases with an all round addition, or should we insist upon the otologist's report on every case? Do we go far enough, on the other hand, in albuminuria? In 1910 Dr Hector Mackenzie suggested that a good many really assurable lives were refused on account of albuminuria I have, I confess, recommended many cases of albuminuria for acceptance, "with removable extras," after microscopical examination of the centrifugalised deposits I have also rejected many Delay seems to be less of an obstacle in these cases than it is in otorrhœa, or perhaps it is that the cost is less

Prophylactic Vaccination

Shall we, after the experience of the army, ask questions as to inoculation for diseases other than small pox by what are called "vaccines as a preliminary to acceptance? Should we be disposed to diminish the premium to the proposer who has been through the whole list of stock vaccines? It has been suggested recently that all the policy holders of a company should be offered free inoculation against the threatened recrudescence of influenza and its complications The office would pay, and was to make a large economy on the saving of claims thus produced The distinguished bacteriologist who made this suggestion scarcely appreciated the difficulties in his way

Infective disease, as all know, forms but a very small part of the total life risk I am anxious to see some day, when we get the decennial supplement to the Registrar General's report covering 1918–19—which will not be for 10 years, probably—whether the influenza mortality, including, if you like, respiratory diseases, has made such a big increase as to support an argument for inoculation as a preliminary to acceptance at ordinary rates I would like to see the mortality figures of the inoculated for comparison Still more important would be an inquiry as to the general prognosis of infective diseases nowadays

The Biological Evolution of Disease

The biological evolution of disease, a matter of great interest for the insurance companies, has as yet, not received enough attention The endocrine secretions have a close relation to this study Our difficulties as insurance advisers may become complicated by inquiries as to the health of the functions of many glands that we at present ignore, and we may be asked to ascertain whether the proposer regularly consumes a ration of some particular gland The insurance of cases of enlarged thyroid, whether attended with the symptoms of Graves's disease or not, is a matter which not infrequently comes before us We do not know much about their mortality, but my experience is that the outlook is not very bad, and that the majority of such cases are acceptable But I would like more information from those who have large experience of these cases over many years

Further, I want to know more about low tension I hinted in the discussion on Dr Otto May's recent paper on tuberculosis that the sphygmomanometer was useful in certain classes predisposed to tuberculosis or suffering from latent tubercle In some of these the only discoverable sign may be a low tension, and such cases with any family history of tubercle, I should regard with much suspicion The question of blood pressure has, I consider, some relation to the study of the endocrine secretions

The Effect of Alcohol on the Duration of Life

Alcohol is by no means exhausted as a subject for consideration We know that for certain select lives, with a very high standard of moral hazard in the risk, there is a low mortality among teetotallers, while Sir Dyce Duckworth in 1904 expressed an opinion in favour of the moderate use of alcohol both among the healthy and the sick The experiments upon which the case for total abstinence rests are chiefly reaction and discrimination time experiments They are perhaps, conclusive as showing the temporary depression of nervous and psychic rapidity of action due to doses of alcohol I submit that such evidence is no criterion as to the effect on life duration It may not be a good thing to be always energetic That a drug capable of producing depression of energy may produce annihilation of energy in larger doses is one thing but there are also drugs capable of producing exaltation of energy which may produce exhaustion All that I feel myself able to say is that excesses are bad in either direction Certainly many abstainers are drug takers, even if it only be their tea that they take To ascribe all the good effects on mortality, among certain excellent groups of lives, entirely to their abstinence from alcohol is unscientific, but inasmuch as total abstinence connotes other qualities making for longevity, it is therefore to be favourably regarded in assessment On post war affections, such as soldier's heart, malaria, dysentery, wounds, amputations, the reasoned guidance of physicians and surgeons, not only of war experience, will be of the greatest help to us Does rapid action of the heart over a prolonged period tend to cardiac or vascular degeneration earlier than if the heart pursues a placid course throughout? Are war neurasthenia and shell shock things which increase mortality now that we hope there is no chance of their recurrence? Should they be "rated up" when the signs have disappeared?

There is all the difference in the world between the clinical diagnosis and prognosis of the obviously ill, and the insurance diagnosis and *prognosis of the apparently well*

Some Difficulties Considered

One great blank in our work is the impossibility of finding out the after history of our insured invalids What especially we do not know is the after history of declined lives An organisation established by all the offices could do a great deal by asking for the return of the claim papers in all cases where the proposers were known to have been rejected or rated up at any time The results of our guess work could then be estimated by analysing such results

A great difficulty is to avoid being guided chiefly by 'impressions" Another is the shifting ground of advancing knowledge, for instance, the improving tropical risk The resulting tendency is always to broaden our work in life assurance The office can, and usually does take care of itself But we are not serving the office well if we reject lives which are assurable at a price In certain families death tends to occur from asthma, bronchitis, pneumonia, phthisis, and so forth, in others from arterio sclerosis, aneurysm, fatty heart, syncope What is the relation of such conditions to infections, notably hereditary and acquired syphilis in the latter group, or to gout, or to excessively strenuous living? There are opportunities for a great extension in our work in investigation, perhaps with actuarial assistance, of all these problems

ARSENIC IN SUGAR

A SERIOUS question arises in regard to the transport of foodstuffs when it is disclosed that arsenical or other poisonous consignments are packed amongst them There were several sufferers from arsenical poisoning at Haslemere this week owing to the leakage of a weed killer tin, the fluid reaching a barrel of moist sugar Some 60 persons were affected, but happily without fatal result, the circumstances being promptly investigated by the local medical officer, Dr R J Hutchinson, conjointly with Dr Spencer Low of the Ministry of Health It seems to us that it is most desirable that poisonous commodities—and arsenical weed killer is a very common one—should be consigned in hermetically sealed vessels, proof against the possibility of leakage The occurrence at Haslemere might have been much more serious than it was, and it is questionable whether those in charge of local transport should be allowed to convey goods with foods and powerful poisons together in close proximity

THE MEASUREMENT OF CARDIO VASCULAR DEPRESSION

AN interesting method of standardising the response of a patient to the joint influence of anæsthesia and surgical shock has been elaborated by Dr Charles W Moots and Dr E I McKesson[1] In order that an accurate observation may be kept on the pressure changes the cuff of a sphygmomanometer is kept in position during the operation and a stethoscope bound below it with elastic webbing Records are made from time to time and entered upon a graph The following table is laid down by the authors as a standard for classification —

Safe —10 to 15 per cent increase on pulse rate without change in pressure 10 to 15 per cent decrease in blood pressure without change in pulse rate

Dangerous —15 to 25 per cent increase in pulse-rate with 15 to 25 per cent decrease in blood pressure

Fatal —Progressively increasing pulse rate above 100 with progressively falling blood pressure of 80 or less systolic and 20 or less pulse pressure for more than 20 minutes

Their clinical work has convinced them that the final factor in shock is muscular exhaustion When a patient is heavily anæsthetised in order to obtain extreme relaxation, he is "half shocked," and often a very little trauma will be sufficient to produce fatal depression The value of anæsthetics in reducing surgical shock has long been realised The possibility of their becoming adjuvant to shock at a later stage raises important considerations, and the whole subject is well worthy of research

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[1] Guy's Hospital Gazette March 6th 1920

THEATRE CHILDREN.

THE rules, dated Jan. 12th, 1920, relating to children licensed to take part in entertainments under the Prevention of Cruelty to Children Act, and the report of the Committee (Cmd. 484) on which they are based show that about 33 children under 12 years of age are thus employed in London, a number increased to 95 during the pantomime season. The rules lay down definite standards for the health and education of these children and the committee found them considerably superior in culture and intelligence to the average child educated in the public elementary school. The licensing depends in practice on the school medical officer, who has to file a certificate of fitness every three months, although, strangely enough, the committee had no medical representative nor was any medical evidence laid before it. According to the wording of the rules, any school medical officer in any area may be asked to certify. While in general the report and regulations are commendable, it is manifestly absurd to require on each certificate particulars of previous licences, lists of text-books to be used, certificates, photographs, reports of last head teacher on the child's educational attainments, and so forth. The thing would be funny if it did not entail so pathetic a waste of time.

THE PEOPLE'S REFRESHMENT HOUSE ASSOCIATION.

THE twenty-third annual report of this association shows a condition of steady progress. At the end of 1919 there were 150 licensed inns held by the association, and during the present year seven will be taken over, while negotiations are proceeding with the Cambridgeshire, Huntingdonshire, and Isle of Ely Public House Trust Association for taking over seven other houses all within easy distance of Cambridge. Ten houses at present held by the Derbyshire Public House Trust will also be taken over at an early date. Since January, 1916, the P.R.H.A. has assisted the Central Control Board (Liquor Traffic) in the management of seven important houses in a directly controlled industrial area. The financial statement shows that after writing off proportion of repairs to date, placing £4069 to depreciation reserve, and paying £1582 interest on loan stock, &c., the amount available for disposal is £13,217 18*s*. 11*d*. To encourage food production the potato clubs started in 1918 were continued in 1919, and prizes to the amount of £258 were awarded, while £494 were given to hospitals, village nursing institutions, and similar charities.

THE MEDICAL NEEDS OF TRINIDAD AND TOBAGO.

INSTRUCTION is to be drawn from the difficulties which arose in the medical administration of Trinidad during the year 1918.

In the first place, there was a good deal of sickness among the members of the medical staff, necessitating frequent changes and causing dislocation of the work. At the Port of Spain Colonial Hospital a nurses' home is an urgent necessity. The hospital accommodation was strained throughout the year, the average number of occupied beds being 345, while the authorised number is 340; at one time as many as 399 patients were accommodated in the wards. An out-patient department is badly needed, and an enlargement of the House of Refuge for aged and incurable poor patients who at present have to be treated at the Colonial Hospital. The principal causes of admission were enteric fever (445 cases and 83 deaths), malaria (331 cases and 22 deaths), pulmonary tuberculosis (235 cases and 118 deaths), and venereal disease (489 cases and 22 deaths).

Similar conditions of overcrowding existed at San Fernando, the next largest town after the capital. The hospital accommodation is for 123, but as many as 160 patients were sometimes under treatment in the wards. Here ankylostomiasis (477 cases) and venereal affections (301) were the chief diseases under treatment; the former disease (of which 29 cases were fatal) showed a large increase (154) over the admissions in 1917. A good water-supply and an efficient type of latrine, the use of which should be compulsory, are urgent necessities in the villages. Dr. E. A. Turpin, who reports on this hospital, considers that a mild anthelmintic dose (chenopodium oil or thymol) is far more reliable for diagnosing the condition than examination of the fæces for ova, the latter often giving negative results, though the patient is heavily infected. There were 123 admissions for pneumonia, of whom 50 died, 25 of these deaths occurring in October, when the disease was "epidemic in character and of a very virulent type"—in fact, influenza. In regard to the treatment of chronic amœbic dysentery and the best means of preventing its recurrence, as emetine given hypodermically does not get rid of the cysts, Dr. Turpin advises a combination of emetine-bismuth-iodide by the mouth, with emetine hypodermically and in large enemata, ol. chenopodium being also administered to expel the cysts; this combination has given good results.

At the Leper Asylum there were 502 inmates at the beginning of the year and 550 at the end, the daily average under care being 534. Of the 203 admissions during the year, 85 were inhabitants of Trinidad or Tobago, while 95 were immigrants from India. The admissions to the St. Augustine Hospital for yaws numbered 1299, more than in any year since the institution was opened, which has caused considerable inconvenience. Since the adoption of salvarsan treatment the number of admissions has been practically doubled (974 compared with 473, annual average). The average duration of stay in hospital, which was formerly 166 days, is now, with the use of salvarsan, only 51 days. The percentage of recurrent cases, which was formerly 12, has now been reduced to 5·4.

In his introductory observations Dr. F. A. de Verteuil, the acting Surgeon-General of Trinidad, draws attention to the numerous resignations which have taken place during recent years among the junior medical officers of the staff, which he considers due to the very meagre salary (£250 per annum) that is offered. As to this there can be no difference of opinion. It would be well for the colonial administrative authorities to give their immediate attention to this matter, as well as to the unsuitability of the quarters for medical officers and nurses that are at present provided.

A SECRET REMEDY BEFORE AN AUSTRIAN COURT.

Dr. Ottmar Reiner, a surgeon in Gracz (Styria), sued Kinsky Renard Maria, the world-famed opera-singer, for a fee of 50,000 crowns, the actress being willing to pay only 10,000 crowns, although, as Dr. Reiner alleged, he saved her life. The patient suffered from X ray burns, which defied every known treatment, and in consequence of the pain of which she became a morphinist. She then consulted Dr. Reiner, who succeeded in curing her entirely in eight weeks with the aid of an ointment, the secret of which he did not divulge. The actress's lawyer argued that the ointment was not the invention of Dr. Reiner, but that he inherited its secret from his grandfather. He reserved an exceedingly profitable secret monopoly for himself, which was contrary to the ethical duties of a doctor. The court accepted this argument, and decided to summon the ethical board of the Medical Society as to the justification of this exorbitant fee from a medico-ethical point of view. The board declared that to keep the composition of an ointment secret for the sake of material gain was contrary to medical ethics, and that Dr. Reiner had already been abundantly paid by the offered 10,000 crowns (£4000). Whereupon the court refused Dr. Reiner's appeal.

A POSTHUMOUS REQUEST.

Mrs. F. H. Seddon, of Clifton Down, Bristol, who died recently, left the following instructions: "That before my body be placed in the coffin the spine and spinal marrow of the neck shall be completely severed by a competent surgeon, to whom a fee of £25 is to be paid."

SCHOOL MEDICAL INSPECTION IN NATAL.

IN the report on School Medical Inspection in Natal during 1918, by Dr. A. B. M. Thomson, it is stated that, of the 1719 routine children examined as many as 646 required treatment—that is, 37·58 per cent. There was a general tendency to overclothe the children in some of the better schools; but allusion is made to the "prevailing fashion among the younger school girls. The object seems to be to show as much of the bare leg as possible, and this is accomplished by wearing very short skirts and still shorter socks. The result is grotesque, and in some cases immodest. Undoubtedly in every instance it is unhealthy, because it exposes a large surface of the body to extremes of temperature, and leads to chills and rheumatism. Why such an outrageous dress should be inflicted on children is more than mere man can understand." This very sensible observation might be made with regard to the dress of similar children in many London schools at the present day. It is said that "the amount of malnutrition has increased" in 1918; but only one child is recorded as being badly nourished, a girl 7 years of age; while 21 per cent. of the boys and 14·5 per cent. of the girls are returned as "medium," and all the remainder as "good." Food prices had risen, and wages had not increased in proportion. Free meals for necessitous children are provided by the Provincial Council. Dr. Thomson recommends the provision of a midday meal, which could be done for 4*d*. a day by the education authority, a much more nutritious dinner being afforded by centralised cooking than could be given by individual parents; he considers that "a universal midday meal at school would materially lessen backwardness among school children, and it would also improve their health and increase their happiness. In other words, it would pay." It is stated that "there were 14 cases of eczema, all of them being 'sores' (impetigo)." Some good recommendations are made as to diet; 37 per cent. of the boys and 30·2 per cent. of the girls had four or more decayed teeth, which, however, is an improvement on the previous year, when the percentages of dental defect were 43 and 39 respectively. Adenoids are met with, but much improvement has taken place, and parents are generally anxious to have them attended to. In 8·2 per cent. of the boys and 6·4 per cent. of the girls adenoids were found, compared with 13·7 and 10·4 per cent. in the previous year. During the year 222 students at native training colleges were examined as to physical fitness; 14·8 per cent. suffered from malnutrition, and in 17·5 per cent. the vision was defective; there were many cases of eyestrain, and the lighting in some of the classrooms was not satisfactory. Some students also seemed to be suffering from over-pressure.

RESCISSION OF RATS ORDERS: A CORRECTION.

THE last sentence in a note on this subject which appeared in THE LANCET of April 3rd (p. 794) should have read: The Rats and Mice (Destruction) Act, 1919, has rendered this memorandum obsolete, and it is now formally withdrawn.

Milroy Lectures

THE HIGHER FUNGI IN RELATION TO HUMAN PATHOLOGY.

Delivered before the Royal College of Physicians of London

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LECTURE II.[*]

Delivered on March 2nd, 1920.

THE higher fungi may attack any organ and system of the human body, the integumentary system being the most frequently and the nervous system the most rarely affected. It would take too much time to discuss seriatim the numerous mycological affections of the various systems, and I will limit myself to only touching on the following so-called internal mycoses: 1. Thrush. 2. Broncho-mycoses. 3. Tonsillo-mycoses. 4. Certain mycoses of the nervous system and organs of special sense. 5. Certain mycoses of the uro-genital system.

THRUSH.

It is generally stated that thrush is due to the fungus *Oidium albicans*, Robin (Syn.: *Monilia albicans*, Robin). For many years, however, I have endeavoured to demonstrate that the ætiology of thrush is far from being so simple, and that this condition, at least in the tropics, is not caused by one fungus only, but by a number of different fungi, and that in reality the term thrush does not cover one affection, but a group of clinically similar conditions due to various organisms.

The fungi I have so far isolated belong to various genera and species—

- Class: *Fungi imperfecti.* Sub-class: *Hyphales.*
  - Order *Thallosporales*—Family *Oösporaceæ*, Saccardo.
    - Genus *Monilia*, Persoon—Several species.
    - Genus *Oidium*, Link—Three species.
  - Order *Hemisporales*—Genus *Hemispora*, Vuillemin—One species.
- Class: *Ascomycetes*—Sub-class: *Protoascomycetes*—Order *Saccharomycetales.*
  - Family *Endomycetaceæ*, Rees—Genus *Endomyces*, Rees—One species.
  - Family *Saccharomycetaceæ*, Rees.
    - Genus *Saccharomyces*, Meyen—One species.
    - Genus *Willia*, Hansen—One species.

Fungi of the Genus Monilia, Persoon.

These are the fungi most commonly found in thrush. As regards their botanical characters, it suffices to say, from a practical point of view, that these fungi are characterised principally by the following features. In the lesions the vegetative body (thallus) is composed of mycelial threads of rather large size often showing arthrospores and numerous free oval or roundish budding yeast-like forms; in cultures, especially on solid media, mostly roundish or oval budding elements are seen, while mycelial filaments are very scarce or absent. These fungi, as a rule, ferment with production of gas, glucose, and often other sugars. The only monilias I know of which do not attack any sugar or other carbohydrate are *M. zeylanica*, Cast., and *M. zeylanoides*, Cast.

There is little doubt that the original fungus *Oidium albicans*, described by C. Robin in 1853, belongs in reality to this genus, and its correct name is therefore *Monilia albicans* (C. Robin, 1853). There is little doubt also that the term *Oidium* or *Monilia albicans* has been used in the past to cover a number of different fungi, as proved by the widely different descriptions of it given by different authors. For instance, some observers state that the organism liquefies gelatin, others deny that it possesses such action. Certain authorities describe it as coagulating milk, others as having no action on this medium.

The more important Monilia fungi I have found in thrush belong to the following types:—

M. balcanica, Cast., ferments, with production of gas, glucose only.

M. krusei, Cast., ferments, with production of gas, glucose and lævulose.

M. pinoyi, Cast., ferments, with production of gas, glucose, lævulose, and maltose.

M. metalondinensis, Cast., ferments, with production of gas, glucose, lævulose, maltose, and galactose.

M. tropicalis, Cast. (Figs. 1, 2, and 3), ferments, with production of gas, glucose, lævulose, maltose, galactose, and saccharose.

M. guillermondi, Cast. (rare), ferments, with production of gas, glucose, lævulose, and saccharose.

M. macedoniensis, Cast. (rare), ferments, with production of gas, glucose, lævulose, galactose, saccharose, and inulin.

M. pseudotropicalis (extremely rare), ferments, with production of gas, lactose in addition to other sugars.

M. pseudolondinensis, ferments dextrin in addition to other sugars.

M. zeylanica, Cast. (Fig. 4), does not produce gas in any sugar or other carbohydrate. This group contains the following species: *M. zeylanica*, Cast., *M. zeylanoides*, Cast.

M. albicans, Robin, *sensu stricto* belongs to the metalondinensis type, and I have very seldom isolated it.

I should like to emphasise the point that a large number of fungi of the genus *Monilia* have not permanent sugar reactions, they often lose some of their original fermentative properties and can be trained to ferment sugars which they do not ferment when recently isolated, and therefore, for purposes of classification and comparison, such fungi should be investigated, using only recently isolated strains (see Table I.).

Fungi of the genus Oidium sensu stricto.—This genus is morphologically closely allied to monilia, and mycelial threads are very abundant both in the lesions and in cultures, and budding, yeast-like cells are rare. Fungi of this genus may occasionally induce an acid fermentation, but never produce gas in any carbohydrate. I have found fungi of this genus in certain cases of thrush in the tropics and in the Balkans, but so far not in England. I have isolated three species (Figs. 5, 6, and 7): *Oidium matalense*, Cast., *O. asteroides*, Cast., and *O. rotundatum*, Cast. It is interesting to note that I have found the same species in cases of mycotic tonsillitis and in the expectoration of certain cases of bronchitis, while I have observed *O. asteroides* also in the stools of certain cases of enteritis.

Fungi of the genus Hemispora.—The botanical characters of these fungi I have given in my first lecture. They are characterised by the presence of abundant mycelial hyphæ, some of which are *conidiophores*. Each *conidiophore* terminates into an ampulliform or sausage-like structure, which is called *protoconidium*. The *protoconidium* later divides into a number of spore-like segments, which are called *deuteroconidia*.

So far only one species of this genus has been found in cases of thrush, *Hemispora rugosa* (Fig. 8). This fungus was first isolated by me from a case of mycotic tonsillitis in 1910, and observed in a case of thrush by Pijper in 1915. Two varieties can be distinguished: one liquefying gelatin, the other having no such action on the medium.

Fungi of the genus Willia, Hansen.—These fungi are characterised by the peculiar bowler-hat shape of their ascospores. I isolated a fungus belonging to this genus in Macedonia from a case of thrush in a gipsy. In sugar broths it formed a thick pellicle containing air-bubbles.

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[*] Lecture I. appeared in THE LANCET of April 17th, 1920 (p. 847).

TABLE I.—FUNGI OF GENUS MONILIA.

—	Glucose.	Lævulose.	Galactose.	Maltose.	Lactose.	Saccharose.	Inulin.	Dextrin.	Litmus milk.	Colour.
Monilia alba, Castellani, 1911.	AG	AG	AG	AG	0	A	0	0	AC	W
**M. albicans*, Robin, 1853.	AG	AGS	AG	AGS	0	AVS	0	0	AC	W
M. balcanica, Cast., 1916.	AG	AS	0	0	0	0	0	0	0	W
M. blanchardi, Cast., 1912.	AGS	A	A	A	0	A	AVS	0	$\frac{\text{AVS}}{\text{ALK}}$	W
M. bronchialis, Cast., 1910.	AG	AG	0	AG	0	AGS	0	A	0	W
M. burgessi, Cast., 1912.	AGS	A	A	AGS	0	AGS	0	0	$\frac{\text{0}}{\text{ALK}}$	W
M. chalmersi, Cast., 1912.	AG	AG	AGS	AS	0	AG	AGS	0	$\frac{\text{AS}}{\text{ALK}}$	W
M. decolorans, Cast. and Low, 1913.	AG	AG	A	AG	0	A	0	A	DC	W
M. enterica, Cast., 1911.	AG	AG	AG	AG	0	AG	0	AS	$\frac{\text{0}}{\text{ALK}}$	W
M. fæcalis, Cast, 1911.	AG	AG	AGS	AG	0	AGS	0	0	$\frac{\text{A}}{\text{DPS}}$	W
M. guillermondi, Cast., 1910.	AG	AG	A	AS	0	AG	0	0	$\frac{\text{0}}{\text{ALK}}$	—
M. insolita, Cast., 1911.	AG	AG	AG	AG	0	AG	0	0	$\frac{\text{AS}}{\text{ALK}}$	W
M. intestinalis, Cast., 1911.	AG	AG	A	AS	0	A	0	0	ADS	W
M. krusei, Cast., 1909.	AG	AG	0	0 or AS	0	0	0	0	0	W
M. condinensis, Cast., 1916.	AG	AG	A	A	A	A	0	0	AC	W
M. lustigi, Cast., 1912.	AG	AGS	A	AVS	0	AGS	0	0	$\frac{\text{AS}}{\text{D}}$	W
M. macedoniensis, Cast., 1917.	AG	AG	AG	A or 0	0	AG	AG	0	AC	W
M. metalondinensis, Cast., 1916.	AG	AG	AG	AG	0	0	0	0	0	W
M. metatropicalis, Cast., 1916.	AG	AG	AG	AG	0	AG	0	0	AC	W
M. nabarroi, Cast., 1917.	AG	AG	0	AG	0	0	0	0	AC	W
M. negrii, Cast., 1911.	AG	AG	AGS	AS	0	AG	0	0	$\frac{\text{AVS}}{\text{ALK}}$	W
M. nitida, Cast., 1910.	AG	AG	A	A	A	A	0	AVS	$\frac{\text{A}}{\text{DC}}$	W
M. nivea, Cast., 1910.	AG	AG	AG	AG	0	AGS	0	0	$\frac{\text{0}}{\text{ALK}}$	W
M. parabalcanica, Cast., 1916.	AG	AS	0	0	0	0	0	0	AC	W
†*M. parachalmersi*, Cast., 1917.	AG	AG	AG	0	0	AG	AG	0	AC	W
M. parakrusei, Cast., 1912.	AG	AG	0	0	0	0	0	0	AC	W
M. paratropicalis, Cast., 1912.	AG	AG	AG	AG	0	AG	0	AVS	$\frac{\text{AS}}{\text{ALK}}$	W
M. perryi, Cast., 1912.	A	AGS	A	A	0	AGS	AVS	0	$\frac{\text{AS}}{\text{D, ALK}}$	W
M. pinoyi, Cast., 1910.	AG	AG	0	AG	0	0	0	0	0	W
M. pseudo-bronchialis, Cast., 1916.	AG	AG	0	AG	0	AG	0	0	AC	W
M. pseudo-guillermondi, Cast., 1916.	AG	AG	0	0	0	AG	0	0	AC or P	W
M. pseudo-londinensis, Cast., 1916.	AG	AG	AG	AG	0	0	0	AG	0	W
M. pseudo-londinoides, Cast., 1916.	AG	AG	AG	AG	0	0	0	AG	AC	W
M. pseudo-metalondinensis, Cast., 1916.	AG	AG	AG	AG	0	0	AG	0	AC	W
M. pseudo-tropicalis, Cast., 1910.	AG	AG	AGS	0	AG	AG	0	0	ACS	W
M. pseudo-tropicaloides, Cast., 1919.	AG	AG	AG	0 or A	AG	AG	0	0	0	W
M. pulmonalis, Cast., 1911.	AG	AG	AGS	AG	0	AG	0	0	$\frac{\text{0}}{\text{ALK, D}}$	W
M. rhoi, Cast., 1909.	AG	AG	AGS	AVS	0	AG	0	0	$\frac{\text{AS}}{\text{ALK}}$	W
M. rosea zenoni, 1910.	—	—	—	—	—	—	—	—	—	P
M. tropicalis, Cast., 1909.	AG	AG	AGS	AG	0	AGS	0	0	A	W
M. zeylanica, Cast., 1910.	A	A	A	A	AS	A	AVS	A	ACS	Y
M. zeylanoides, Cast., 1919.	A	A	A	A	0 or AS	A	0 or AS	A	0	Y

Abbreviations.—A = acid. G = gas. C = clot (milk), clear (broth and peptone water). CTP = clear at first; then thin pellicle present. D = decolorised. P = peptonised (milk), pellicle (broth). ALK = alkaline. $\frac{\text{A}}{\text{ALK}}$ = acid, then alkaline. S = slight. VS = very slight. 0 = negative result—viz., neither acid nor clot in milk; neither acid nor gas in sugar media; non-production of indol; non-liquefaction of gelatin or serum, as the case may be. + = positive result, liquefaction of medium. In column headed "Colour," W = white, P = pink, Y = yellowish.

* Gelatin +, Serum +s. † Gelatin +. In all other instances gelatin and serum gave a negative result.

It produced gas in glucose and lævulose only. Cultures on solid media contained asci with 2–4 spores of the peculiar bowler-hat-like appearance. (Fig. 9.) The fungus seemed to be somewhat similar to *Willia anomala*, Hansen, but the investigation of it is not yet complete.

Fungi of the genus Endomyces, Link.—These fungi are on superficial examination similar to those of the genus *Monilia*, budding elements and mycelial threads being found in the lesions, and mostly budding elements in cultures. There is, however, a very important character which differentiates these fungi: in old cultures of endomyces asci are present. Only once have I come across a case of thrush due to a true endomyces, in Macedonia in 1917. I considered it to be *E. vuillemini*, Landrieu.

Fungi of the genus Saccharomyces, Meyen.—In the Balkans I found a case of thrush due to a typical saccharomyces, which I have only recently studied. Fungi of this genus are characterised by the vegetative body consisting only of budding elements, and by the presence of asci in cultures. The saccharomyces isolated by me ferments with production of gas, glucose, lævulose, galactose, maltose, and saccharose. It does not clot milk, which, however, may occasionally become acid. Gelatin and serum are liquefied.

Clinical Varieties of Thrush caused by Above Fungi.

I have always endeavoured to combine the laboratory and the clinical investigation of the cases of thrush observed, in order to see whether different groups of fungi are causing different types of the condition. In my experience two principal varieties of thrush may be distinguished clinically:—

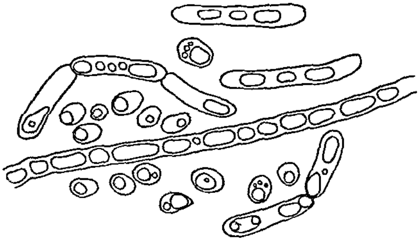
1. *White, or white-greyish type.*—This is by far the most common, and in this country apparently the only one found. It is characterised by the cream-white colour of the patches.

2. *Yellow, or yellow-brownish type.*—This is characterised by the yellowish, occasionally brownish, colour of the patches.

The first type (or white type) may be caused by any species of the genus *Monilia* (except *M. zeylanica*, Cast., and *M. zeylanoides*, Cast.), by *Oidium matalense*, Cast., by *Endomyces vuillemini*, Landrieu, and by fungi of the genus *Saccharomyces*, Meyen, and *Willia*, Hansen. The second type (or yellow variety) is caused by *M. zeylanica*, Cast., *M. zeylanoides*, Cast., *Oidium rotundatum*, Cast., and *Hemispora rugosa*, Cast.

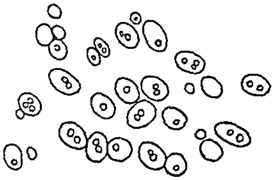
In conclusion, I should like to say again that thrush is not caused by one species of fungus only, the so-called thrush-fungus or *Oidium albicans*, Robin, as generally

FIG 1



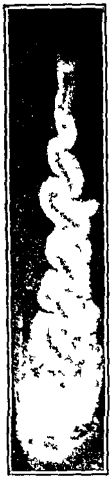
Monilia tropicalis direct from the lesions

FIG 2



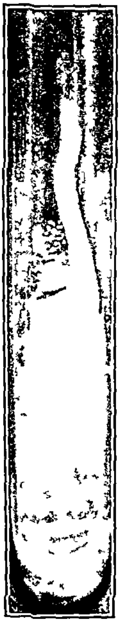
Monilia tropicalis preparation from a glucose agar culture

FIG 3



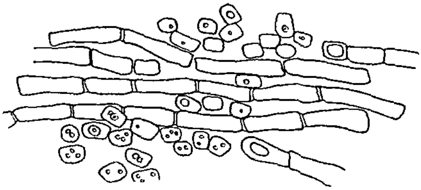
Monilia tropicalis glucose agar culture

FIG 4



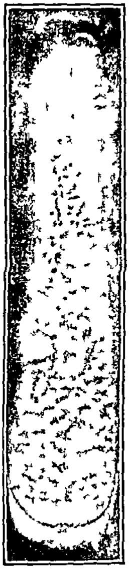
Monilia zeylanica glucose-agar culture

FIG 5



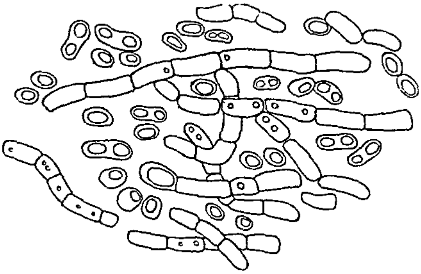
Oidium asteroides from a glucose agar culture

FIG 6



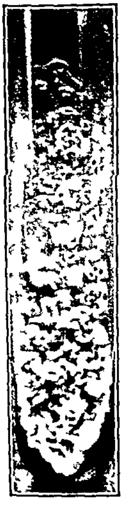
Oidium asteroides

FIG 7



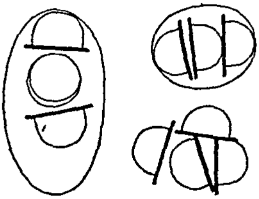
Oidium rotundatum from a culture

FIG 8.



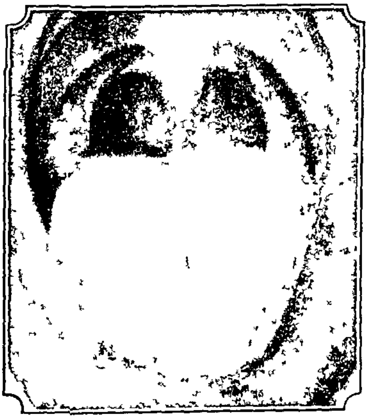
Hemispora rugosa glucose-agar culture

FIG 9



Willia ascospores

FIG 10



Tonsillo-mycosis due to *Hemispora rugosa* stated. It is caused by a number of different fungi, some of which are botanically very far apart from each other, and belong to separate species, genera, and families.

Sprue.

Before leaving the subject of thrush I might say a few words on a very important tropical disease, which, according to many authorities, is ætiologically connected with thrush—namely, sprue. This tropical affection, very common in Ceylon, is characterised, as well known, by profound anæmia, progressive wasting of the patient, and white, frothy diarrhœa. Kohlbrügge first in 1901[1] ascribed the disease to the thrush fungus: *Oidium* or *M. albicans*. He made a very thorough histological study of one of his cases which ended fatally, and emphasised the fact that the fungi, in sections of the tongue, &c., had invaded the deep strata of the mucosa, the glands, and portions of the submucosa. These findings were speedily confirmed by other observers, and Le Dante in 1907 suggested for the disease the term of "Blastomycosis intestinalis." During my long stay in Ceylon I investigated the intestinal mycological flora of several cases of sprue, and I found that fungi were present almost constantly. I noted the following: *M. decolorans*, Cast. and Low, *M. intestinalis*, Cast., *M. fæcalis*, Cast., *M. insolita*, Cast., *M. tropicalis*, Cast., *M. enterica*, Cast., *Oidium rotundatum*, Cast., *O. asteroides*, Cast. I believed the monilias to be the probable cause of the frothy diarrhœa, but I did not agree with Kohlbrügge that they were the primary cause of the malady. Low came to the same conclusion as I did. Recently Kohlbrügge's theory has been supported in a series of publications by Bahr, Ashford, and others, while Sir James Cantlie has brought forward the hypothesis that it is a deficiency disease, and Sir Leonard Rogers and Nicholl the theory that it is a streptococcus infection.

I have made tentatively the suggestion that, as is the case with dysentery, the term sprue may perhaps cover several clinically similar but ætiologically different conditions: one might be of mycological origin, another of bacterial origin, &c.

BRONCHO-MYCOSES.

Bronchial affections due to the higher fungi are quite common in the tropics, and are occasionally met with also in temperate climates. They may be classified in several groups as follows:—

1. Causative fungus belonging to the genus *Nocardia*, Toni and Trevisan, or the genus *Cohnistreptothrix*, Pinoy: Nocardiasis.
2. Causative fungus belonging to the genus *Monilia*, Persoon: Broncho-moniliasis.
3. Causative fungus belonging to the genus *Oidium*, Link: Broncho-oïdiosis.
4. Causative fungus belonging to the genus *Hemispora*, Vuillemin: Broncho-hemisporosis.
5. Causative fungus belonging to the genus *Aspergillus*, Micheli, and *Sterigmatocystis*, Cramer: Broncho-aspergillosis.
6. Causative fungus belonging to a *Penicillium*, Link: Broncho-penicilliosis.
7. Causative fungus belonging to the genera *Mucor*, Micheli; *Rhizomucor*, Lucet and Constantin: Broncho-mucormycosis.
8. Causative fungus is a *Sporotrichium*: Broncho-sporothrichosis.

I have come across cases of all the forms I have mentioned. The severity of these affections depends a great deal on the variety of fungus present. If the condition is of nocardial origin the prognosis is very bad, if of monilia or oidium origin the outlook is less unfavourable, though certain cases terminate fatally. If the affection is caused by a sporotrichium, a hemispora, or in general by fungi which are rapidly influenced by potassium iodide, the prognosis is good.

I may perhaps be allowed to say a few more words about three of the varieties I have mentioned.

1. Broncho-moniliasis, and in connexion with it "tea-factory and tea-taster's cough."
2. Broncho-mucormycosis.
3. Broncho-aspergillosis.
4. Broncho-penicilliosis.
5. Broncho-nocardiasis.

Broncho-moniliasis.

This variety of broncho-mycosis was described by me in 1905 in Ceylon. The condition has recently been found in many tropical and subtropical countries, and even in the temperate zone. Pijper has described cases in South Africa, and Chalmers and MacDonald and Fahra had a number of cases in the Soudan and Egypt, while Iacono has found several cases in the south of Italy, and only a few weeks ago I found a case in this country. The condition appears to be caused by several different species of the genus *Monilia*, which I have described on other occasions (see also Castellani and Chalmers's Manual of Tropical Medicine, p. 1886).

Clinically, a mild type and a severe type of the malady may be distinguished, with, of course, a number of intermediate cases. In the mild type the general condition of the patient is good, there is no fever, and he simply complains of cough. The expectoration is muco-purulent, often scanty, and does not contain blood. The physical examination of the chest is negative or reveals only a few râles. The condition may last for several weeks or months, and may get cured spontaneously, or continuing, may turn into the severe type.

The severe type closely resembles phthisis. The patient becomes emaciated, there is hectic fever, and the expectoration is often bloody. The physical examination of the chest may show patches of dullness, fine crepitations, pleural rubbing. This type may be fatal.

The treatment consists in giving potassium iodide to which glycerophosphates and balsamics may be associated. It is interesting to note, however, that in certain cases potassium iodide has practically no beneficial action whatever.

Tea-taster's Cough.

In connexion with broncho-moniliasis, I may say a few words on the so-called "tea-taster's cough" and "tea-factory cough." In 1906 a young assistant in one of the big Ceylon firms, a tea-taster, came to consult me for a chronic cough, which he said had not yielded to ordinary treatment, and had been suspected by several medical men to be of tuberculous origin. He emphatically stated, however, that he did not believe it was tuberculosis. "I am merely suffering," he said, "from tea-taster's cough," an expression I had never heard before. The general condition of the patient was good, and the physical examination of the chest revealed only a few coarse râles. The microscopical examination of the sputum was negative for T.B.; instead I noticed microscopically some mycelial filaments and some yeast-like bodies. I inoculated several glucose-agar tubes and I grew a monilia fungus which, at the time, I believed to be an endomyces.

How did this patient get infected? Tea-tasters, in order to judge of the quality of the various teas, not only taste infusions, but often fill their hands with the tea-leaves and bury their noses in them, sniffing them up; in this way a certain amount of tea-dust enters the nasal cavities. Now if one examines tea-dust in Ceylon one finds that it contains fungi of the genus *Monilia* constantly, of the genera *Aspergillus* and *Penicillium* frequently, and of the genus *Oïdium* occasionally. A peculiar streptococcus is also very often present. The same organisms are not rarely found in the nasal cavities of tea-tasters, and when bronchial symptoms appear in them monilia-like fungi are present in the expectoration. It is probable therefore that the so-called tea-taster's cough is a moniliasis, especially as a guinea-pig, in the nostrils of which I insufflated tea dust regularly, died with symptoms of chronic bronchopneumonia.

What I have said about "tea-taster's cough" applied to a great extent to the so-called "tea-factory cough." For many years planters have noted in Ceylon that the coolies doing work in the tea-factory, where the leaves are dried and there is a large amount of tea-dust floating about, after some months become weak, lose flesh, and often have a cough with muco-purulent expectoration. The planters have found by experience that these coolies must be taken away from the factory and sent to work in the field, and then the symptoms slowly disappear. I have examined some of these coolies, and their expectoration practically always contains fungi of the genus *Monilia*. I have little doubt, therefore, that the so-called tea-factory cough is a *broncho-mycosis and probably a broncho-moniliasis.*

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[1] Arch. f. Schiffs u. Tropen Hygiene, 1901, No. 12.

Broncho-mucormycosis.

While I was in Macedonia a Serbian was sent to me with the diagnosis of T.B. The patient was very anæmic, very weak, and was losing flesh rapidly; slight fever at night. Sputum muco-purulent. The examination of the chest revealed nothing except a few coarse râles. Examination of the sputum for T.B. constantly negative; instead, a few mycelial segments were noticed on several occasions. Glucose agar tubes and other media were inoculated and a fungus was isolated, which at first showed cultural characters somewhat monilia-like; in subcultures, however, the characters of a mucor appeared; a yellowish ovoid-shaped "columella," sporangium globular, about 50 micron in diameter, of yellowish colour; spores elliptical, smooth.

How did this patient get infected? It is interesting to note that he was in charge of horses and often had to remove horse-dung. As is well known, *Mucor mucedo*, L., is extremely common in horse-dung.

Broncho-aspergillosis.

I have seen several cases of this condition in the tropics—a case in an island in the Adriatic, another in Macedonia. These two cases have been diagnosed as T.B.; from one *Aspergillus fumigatus*, Fresenius, was grown; from the Macedonian case a fungus very similar or identical with *Sterigmatacystis nigra*, Cramer, was isolated. In France, as well known, a peculiar bronchial aspergillosis is common among pigeon breeders (*gaveurs de pigeon*), who fill their mouths with grain and blow it into the mouths of the pigeons. The grain contains spores of various aspergilli and after a time most *gaveurs* become infected.

Broncho-penicilliosis.

A Serbian soldier was sent to me with the diagnosis of T.B. He was wasting and had serotine fever. Expectoration muco-purulent, occasionally bloody. Examination for T.B. constantly negative. A few mycelial threads present. A fungus was grown with the characters of *Penicillium crustatum*, L. Potassium iodide acted satisfactorily.

Broncho-nocardiasis.

In the Balkans I have observed one case of this condition, in the tropics several. The case seen in the Balkans was a young Serbian with all the symptoms of tuberculosis of the lungs; great loss of flesh, serotine fever, bloody expectoration; the physical examination of the chest showed patches of consolidation, crepitations, and pleural rubbing. The sputum contained at times some very small, whitish granules, composed of very thin branching filaments, Gram-positive, and partially acid-fast. The fungus was easily grown on maltose and glucose-agar, and in subcultures also on ordinary agar. The cultures had at times a pink-reddish colour. Gelatin was liquefied. No treatment was of any avail.

TONSILLO-MYCOSES.

Mycotic affections of the tonsils are far from being rare, especially in tropical countries. The more chronic conditions, especially of the crypts, due to nocardia-like and leptothrix-like fungi, have been known for many years, but I should like to call attention to certain acute mycological affections which I have described during the last 15 years, and which not rarely have been mistaken for diphtheria—viz., tonsillar moniliasis, tonsillar oidiomycosis, and tonsillar hemisporosis. (Fig. 10.)

Acute tonsillar moniliasis.—CASE 1.—Singhalese girl, about 11 years, admitted to the Infectious Diseases Hospital of Colombo with the diagnosis of diphtheria. There were white patches on the tonsils, uvula, and soft palate. The temperature was rather high (102°); the pulse frequent and of low pressure. There was swelling of the lymphatic glands at the angle of the jaw. The child developed symptoms of broncho-pneumonia and died three days after admission. (Anti-diphtheria serum was given twice by the physician in charge of the hospital.) The microscopical and bacteriological examination of the patches for the Klebs-Löffler bacillus, carried out with the usual technique, using serum-media, &c., remained negative. No bacteria of any kind were seen in the specimens directly taken from the patches, but numerous mycelial and conidial elements of a fungus were present. On serum and glycerine agar media no colonies of diphtheria or other bacteria. The fungus had all the characters of *Monilia tropicalis*, Cast.

CASE 2.—A young European lady, 22 years of age, became suddenly ill with sore-throat at one of the Colombo hotels. Her medical attendant suspected diphtheria, and called me to see her in consultation. When I examined her the temperature was 101°, pulse 98; she complained of difficulty and pain in swallowing, both tonsils and uvula were covered with white creamy patches. Preparations made from the patches revealed an enormous number of yeast-like organisms and a few cocci, while no bacilli of any kind were present. This, of course, was sufficient to exclude diphtheria. On glucose agar tubes a fungus grew in pure culture with all the characters of a monilia. This monilia rendered milk slightly acid, and then decolorised it completely; did not liquefy serum or gelatin. On serum it induced a narrow zone of black discoloration all round the growth.

Acute tonsillar oidiosis.—European, 25 years of age; since several years in Ceylon. In November, 1914, was taken ill with severe sore-throat, difficulty in swallowing, and high fever (104° F.). When I saw him, 12 hours after onset, both tonsils were covered with a white exudation, but not the uvula.

The microscopical and bacteriological investigation showed absence of the diphtheria bacillus, while a fungus was grown with the botanical characters of an oidium. Further investigation revealed it to be very similar to *Oidium matalense.*

Acute tonsillar hemisporosis.—I am indebted to Dr. Spaar for the clinical notes of the following case. European planter, admitted to the Kandy Hospital on May 2nd, 1913. The illness had started two weeks previously. Temperature on admission 101°. Complained of severe pain in the throat and of difficulty in swallowing. Flushed face; felt extremely weak and exhausted. Voice thick and nasal. Swallowing painful and difficult. Fluid regurgitated through nostrils. There was a profuse flow of saliva. The muscles of the neck were rigid, submaxillary glands enlarged and painful. The patient was unable to open the mouth wide. Tongue thickly coated and dry; soft palate swollen. Greyish membranes were present on the left tonsil, left anterior pillar, and soft palate. Diphtheria antitoxin (2000 units) injected the same day into the flank and a spray of hydr. perox. prescribed. During the next four days the general condition improved, but the white-greyish membrane in the cleft between the left tonsil and the left anterior pillar was still very evident. Nine days after admission there was still a small whitish patch visible, but the patient felt quite well and was discharged the following day.

Dr. Spaar sent swabs taken with all possible precaution to me for examination. In smears made from the swabs no bacilli were seen, a few cocci were present, and numerous large mycelial segments of a fungus. Serum tubes and glycerine-agar tubes were inoculated as usual, and, given the presence of mycelial threads, also several sugar agars. The serum and glycerine-agar tubes did not show any growth of the diphtheria bacillus; instead there was growth of a fungus with a peculiar crinkled surface which I had found previously in 1909 in a case of bronchitis. I was uncertain about its classification, and placed it temporarily in the genus *Monilia*, and called it *Monilia rugosa*. However, I sent cultures of the fungus to Professor Pinoy, of the Pasteur Institute, who, after a long botanical investigation, came to the conclusion that the organism belonged to the genus *Hemispora*. The correct name of the fungus became therefore *Hemispora rugosa* (Cast.). During the war I have seen several cases of acute tonsillo-mycosis in the Balcanic-Adriatic zone, and recently a case in Paris, and a case in this country.

MYCOTIC AFFECTIONS OF THE NERVOUS SYSTEM AND OF ORGANS OF SPECIAL SENSE.

In 1904, from the pus of a cerebellar abscess, I grew an extremely delicate fungus, a nocardia which was Gram-positive and partially acid-fast. No club-like formations were present in microscopical preparations. This nocardia grew comparatively well on sugar media, very slowly and scantily on ordinary agar. On all media the colonies had a black pigmentation. Abscesses of the brain and cerebellum due to true actinomyces have been described by several authors. In cases of general infections due to saccharomyces, monilia, and endomyces-like fungi, abscesses containing such fungi may be found in the brain and spinal cord, as in other organs of the body.

Organs of special sense.—Mycological affections of the eye may be classified as follows: Due to species of genus *Nocardia* and genus *Cohnstreptothrix*, ocular nocardiasis. Due to various species of—

$$\left.\begin{array}{l}\text{Genus } \textit{Saccharomyces}\\ \textit{Cryptococcus}\\ \textit{Endomyces}\end{array}\right\} = \text{Ocular blastomycosis.}$$

Due to fungi of genus *Monilia*, ocular moniliasis.
Due to fungi of genus *Oidium*, ocular oidiomycosis.
Due to fungi of genus *Aspergillus* and *Penicillium*, ocular aspergillosis and penicilliosis.
Due to fungi of genus *Sporotrichium*, ocular sporotrichosis.
Due to fungi of genus *Glenospora*, ocular glenosporosis.

The commonest mycological affection in Ceylon is moniliasis. I have seen several cases in Singhalese children of a conjunctivitis apparently due to a monilia; the conjunctiva was highly inflamed, there were photophobia and purulent discharge. The microscopical examination showed in addition to pus cells, numerous yeast-like bodies. No gonococci or any other bacteria were present. Agar and various sugar-agar tubes were inoculated with the pus, and a monilia fungus was grown. It is to be noted that not rarely, at least in the tropics, spores of various fungi are found in the slight secretion which so often collects at the angles of the eyes even in normal people, but these spores do not, apparently, usually give rise to any symptoms.

Rhinomycoses.—Yeast-like and other fungi are often observed in the nasal mucus; they may play only a saprophytic rôle or they may give rise to an inflammation of the mucosa. In Colombo a little native boy was brought to me by his parents, who stated that he had been suffering for the last three months from repeated attacks of severe sneezing, and that they had observed that on blowing the nose minute black dots were coming out in the mucus. Microscopical and cultural investigations showed this case to be one of aspergillosis due to *A. niger*. In the literature cases of aspergillosis of the nose due to *A. glaucus* (De Bary) and *A. fumigatus* (Fresenius) have also been described.

Otomycoses.—Various fungi may be present in the external auditory canal without causing any symptom. In some cases, however, the fungus multiplies abundantly, and may be the cause of a local inflammation or may apparently facilitate the formation of a wax plug. In several cases I have found a monilia which I have called *M. rhoi*. It two cases of otomycosis I have found a fungus belonging to the family *Mucoraceæ*, *Lichteimia ramosa* (Lindt., 1886). It was present in great quantity, and the patient complained of tinnitus aurium and deafness. It is interesting to note that this fungus is found often in the nasal mucus of horses, and both my cases were Tamil *muttus* (horse-keepers). Various authors (Siebenmann, Boke, Huckel, &c.) have recorded cases due to *Lichteimia corymbifera* (Cohn), *Rhizomucor septatus* (von Bezold); Maggiora and Gradenigo found *Saccharomyces ellipsoides* (Rhees) in a case of chronic otitis media. The same authors found a new species of saccharomyces (*roseus*) in the Eustachian tube.

Aspergillomycosis of the ear is comparatively frequent; I have seen several cases in Ceylon, apparently due to *A. fumigatus* (Fresenius); Cramer observed *A. niger* (von Tiegham); Wreden, *A. flavus* (De Bary); Siebenmann, *A. repens* (De Bary); and *A. nidulans* (Eidam). Fungi of the order *Basidiomycetes*, family *Ustilagineæ*, have also been observed; *Ustilago carbo* and *Tilletia levis*. Of the order Hyphomycetes, *sensu stricto*, *Tricothecium roseum* (Persoon, 1801) has been observed in a few cases.

I may here mention that the best treatment I have found for the various forms of otomycosis is syringing with hydrogen peroxide 2 parts and alcohol 1 part.

CERTAIN MYCOSES OF THE GENITO-URINARY SYSTEM

Urethritis of hyphomycetic origin.—In the tropics and in the Balkans I have come across several such cases, which in my experience may be classified as follows:—

1. Discharge whitish or yellowish—the causative fungi generally belong to the genera *Saccharomyces*, *Monilia*, *Cryptococcus*, *Oidium*.
2. Discharge dark brownish or greenish-black, or black: These cases are generally due to fungi of the genus *Cladosporium* (*Foxia*), *Aspergillus*, *Penicillium*.
3. Discharge reddish or pinkish: Generally due to the red-pigment-producing fungi of the genera *Cryptococcus*, *Saccharomyces*, and *Monilia*. At times two organisms are found: a higher fungus such as a monilia, and in symbiosis with it a red-pigment-producing coccus or bacillus.

I may quote the following cases illustrating the various clinical types I have mentioned:—

Mycotic urethritis with yellow discharge.—A young Serbian officer in Macedonia consulted me for a fairly abundant purulent urethral discharge. The patient was greatly distressed: he was engaged and believed he was suffering from gonorrhœa, though he denied having exposed himself to infection. I examined the secretion: no gonococci present; instead a very large number of yeast-like cells and a few mycelial filaments could be seen. The cultural investigation showed presence of a monilia very similar to *M. krusei*. I prescribed a mixture containing pot. iod., soda bicarb., glycer., syr. of tolu, and irrigations with a solution of perchloride of mercury 1 in 20,000. The discharge disappeared completely within ten days.

Black mycotic urethritis.—An old Tamil coolie came to the Colombo Clinic in January, 1906, complaining of black urethral discharge dating from several months back. He stated that he had not had sexual contact for several years. The secretion was blackish and contained numerous small granules, which on microscopical examination were seen to consist of mycelial threads and spore-like bodies. Various sugar media were inoculated and a fungus was grown, producing a black pigmentation, and very similar also in other characters to *Cladosporium mansoni* (Cast.). In two other clinically similar cases, one in a native and the other in a European, I found aspergillus-like fungi.

Red discharge.—A little Singhalese boy, 6 years old, was brought to my clinic in Colombo by his parents because they believed he was passing blood from the urethra. The discharge, examined microscopically, consisted of some leucocytes and numerous budding cells. Several sugar-agar tubes were inoculated and a red-pigment-producing cryptococcus was grown. The child was given an alkaline mixture, and instillations of diluted glycerine of borax were carried out. This, however, did not improve the condition. Urethral injections of a solution of perchloride of mercury, 1 in 20,000, were then made and a speedy cure resulted.

Very similar mycological conditions of the female genito-urinary organs may be observed, and cases of vaginitis and vulvo-vaginitis due to fungi of the genus *Monilia*, *Cryptococcus*, *Aspergillus*, *Penicillium*, and *Cladosporium* have been recorded; and as the same fungi are found in urethral and vaginal discharge, it cannot be excluded that in certain cases these mycological infections may be contracted by sexual intercourse. When the monilia-like and saccharomyces-like fungi are the causative agents two clinical varieties may be distinguished. In some cases thrush-like patches are present on the mucosa (vaginal thrush); in others no such patches are present, but the discharge is purulent, very thick, and, in my experience, these latter cases have not rarely been mistaken for gonorrhœa. In 1914 the surgeon in charge of the Colombo *Lying-in Home had* a case in which a pelvic operation was urgent; a thick purulent vaginal discharge was, however, noted, and he felt inclined to postpone the operation. A specimen of the discharge was sent to me with the request to examine it for gonorrhœa. No gonococci; however, were found, instead an enormous amount of mycelium and conidial elements. Further investigation revealed the fungus to be *Monilia pinoyi*, Cast. Cases of hypomycetic vaginitis are found, though not so frequently, also in temperate climates, and Taylor and myself have placed on record several such cases. It must be added, however, that finding fungi in vaginal mucus is nothing new; one may read in THE LANCET of as long ago as 1840 (p. 448) a paper by Wilkinson with the following title: "*Some Remarks upon the Development of Epiphytes with the Description of a New Vegetal Formation found in connection with the Human Uterus.*"

A Presidential Address

ON

MATERNITY AND CHILD WELFARE WORK.

Delivered at the First Meeting of the Society of Medical Officers of Maternity and Child Welfare Centres at Bedford College, Regent's Park, on March 26th, 1920,

BY HECTOR CHARLES CAMERON, M.D.CAMB., F.R.C.P.LOND.,

PHYSICIAN AND PHYSICIAN IN CHARGE, DEPARTMENT OF DISEASES OF CHILDREN, GUY'S HOSPITAL.

LADIES AND GENTLEMEN,—My first duty is to thank you for the honour you have done me in electing me as the first president of this society. I hope that as a society it will soon display a vigorous existence, with a momentum of its own, owing no more than is necessary to the exertions of any particular individual or group of individuals. That, I think, is the criterion of healthy existence in such a society as ours. Nevertheless, in order to set the ball rolling there is need, in the first instance, for the help of a small number of enthusiasts, some in London and some in those other parts of the country where, from time to time, it may be decided to hold meetings. I hope that ultimately, all over the country, there may be arranged pleasant and informal meetings between the medical men and women who are interested in various phases of maternity and child welfare, meetings at which the clinical aspects of the work may be freely discussed, meetings from which we may catch something of each other's enthusiasm and by which the practice of each of us may benefit from the experience of all. For such coöperation between us the time, I think, is already overdue. I need not say that I am a strong believer in the possibilities for good which are inherent in the movement for maternity and child welfare, nor am I in the least inclined to regard the results which have been achieved so far as altogether insufficient or unsatisfactory. Great progress has been made. Visible success has crowned efforts which have deserved it. This country of ours enjoys certain advantages over all other countries which have made possible the surprising developments of the work in the last few years. In the first place, in no other country has the Government shown so much appreciation of the importance of the subject or extended the same recognition and assistance. In the second place, in no other country was there already in existence before the movement started a Public Health Service in any way comparable in scope, organisation, and efficiency to that which was established here, and which was able to take under its control from the first a very large part of the management of the new movement. I think the possession of these two advantages accounts very largely for the rapidity with which the work has progressed during the last few years—a rapidity of which we may well be proud; and so, if in what I have to say I speak no more of the success the movement has achieved, but confine myself to deploring some things which seem to me *a source of weakness and an impediment to progress*, you will understand, I feel sure, that it is not because I do not recognise the value of what has been accomplished, but only because I desire to see the movement forward accelerated.

THE CONFUSION BETWEEN CURATIVE AND PREVENTIVE WORK.

Now, in the first place, I believe very strongly that success is denied to a very large number of centres because the distinction between curative and preventive work is not recognised. Under the name of "Infant Welfare Work" more often than not there are combined three separate branches of activity. Many infant centres do not confine themselves to the care and inspection of healthy children, to supervising their management, diet, and clothing, to encouraging breast-nursing and perfecting its technique, and to educating the mothers to an appreciation of health and pride in it. They prefer to act, or are forced to act, as well, at the same place and time, as centres for treatment, especially inviting the attendance of children already suffering from malnutrition or infection. With these two different and entirely incompatible functions is commonly combined a third. They act as distributing centres for doles of milk, food preparations, or clothing, dispensed free of charge or at reduced prices. Now, in my opinion, *it is very easy to recognise the deplorable result of this admixture of functions. The mothers and the* general public *are confused in their notions* as to the object and aim of the welfare centres. I should like to see displayed in every centre a statement that we doctors are generally powerless to undo all the ill-effects of chronic infantile ailments, but that, with the help of the mothers, we can do much to prevent them. It was because of the complete and proved failure of hospital out-patient departments and dispensaries in this *respect that we were led to investigate the possibilities of preventive institutes, and found them of* value. If sick and ailing babies are to be seen side by side with those that are thriving it is to be expected that the sick will monopolise time and attention to the exclusion of the healthy, and inevitable that many mothers of healthy children will then ask themselves of what use it is to continue attendance. I fear that mothers generally have little idea of the true purpose of a centre. To too many of them they are places to which they may take the baby for advice and treatment when a long process of faulty management has finally resulted in infection. I am not unmindful of the needs of the children whose health is permanently below par. No doubt both the sick and the whole need a physician, and the same organisation and the same building may have to be used for both purposes. But in all that we do it seems to me necessary that we should see to it that the distinction between the healthy and the ailing is clearly impressed on every mother. We may define the healthy infant as the infant who, upon the breast or upon some suitable artificial diet, proves itself capable of a steady gain in weight and of acquiring its several functions in due time. Such an infant we may be confident is acquiring day by day an increasingly high resistance against infective disorders of all sorts. If the weight fails to increase during a period of some weeks, or has fallen for any reason more

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than 25 per cent. below the average, or if progress is persistently unsatisfactory in any other way, then, I think, that child should fall from the category of the healthy to that of the sick. I think the hours of attendance of the sick should be different, and that the mother should understand the reluctance with which we have to transfer her child from the one department to the other. Only when the child has again shown its power to thrive and gain in weight, without medicinal treatment or any profound modification from the standard diet of health, should it be readmitted. The whole atmosphere of the two services must be different. Among the healthy children the note must surely be that of congratulation, and admiration, and delight. When the child has to be transferred to the treatment clinic there may be hope and encouragement, and sympathy and a concentrated effort to produce better results, but there can be little of the light-heartedness that is so essential in the other. A blue ticket for health and a pink one for failure with different days of attendance, and the contrast in the whole tone and atmosphere will, I think, do more than anything else to help the mothers to realise what we are aiming at. Yet the Ministry of Health in its latest Memorandum, while expressing the hope that the essentially preventive aspect of the work will not be lost sight of, suggests that the syphilitic infant may well be treated in the welfare centre—a sort of death's head at a feast. To mix the sick with the healthy is to obscure any good effects obtained; to cast a shadow of disease and death over what was meant to be a place of health. I make the same criticism of the observation wards annexed to centres. I know that they are said to be for infants only slightly ill, but who can tell the slight illness of to-day in the young infant from the fatal illness of to-morrow? In these observation wards there must occasionally be failures and deaths, and an infants' centre is the last place which should be associated, in the minds of the public, with death. Nor can the reputation of a centre support such a disaster. A centre serves a comparatively small area of adjacent streets. One or two deaths will evoke comments and criticisms which may outweigh the credit earned by a year of patient work. Indeed, I think the observation ward should be removed as far as possible from the centre, and should have no apparent connexion with it. Before the child is admitted it should have ceased to be numbered among the healthy infants attending the centre.

THE CENTRE AS A DISTRIBUTER OF GIFTS AND DOLES.

To the other functions which it has become the rule for the infant centres to assume that of a distributing centre for milk or clothing or various drugs and preparations, for which no charge, or only a nominal charge, is made, there are, to my way of thinking, also very grave objections. It is not to the good of the cause that mothers should be attracted by what they may be given. I have heard of instances where mothers attend more than one centre to receive double gifts. I have heard of instances where mothers have been attracted away from one centre to another because it has more to give. The centre should know of the provision of these gifts and should recommend suitable cases to apply in order to participate, but there should be nothing to suggest that their provision is a bribe offered to mothers to attend centres. Are mothers at one centre to be urged to make garments and taught to do so, and at another are they to be given a complete outfit for 6*d.*?

"The centre is worth as much as the presiding physician" is a saying of Budin, quoted with approval by the Ministry of Health in the Memorandum referred to above. I can imagine nothing more calculated to lower the worth of "the presiding physician" than the suspicion that the mothers are there, not in response to what he or she has to offer, but in order to participate in the bounty. If drugs and widely advertised foodstuffs are to be dispensed, then it is to the drugs and foodstuffs that credit will be given. But if a mother does not realise that any good result is due to her own exertions, guided and inspired by the physician, then our labour is in vain. In the past few years our work has moved rapidly. In these two particulars especially I submit to you the movement has been in the wrong direction, and the original aim and purpose of our work have been lost sight of.

THE RELATION OF HEALTH VISITOR AND MEDICAL OFFICER.

In the second place, I desire to consider shortly the part which is nowadays played by trained health visitors and trained nurses in infant welfare work and their relation to the medical officer. Here, also, there has been, of recent years, very great development, and no one, I think, would venture to say that the direction has here been retrograde. It is right that these workers should be trained as highly as possible, and should know something of the rudiments of hygiene, physiology, and dietetics. To very many of them, in addition, is given a keen understanding, tact, sympathy, and unfailing patience. But while medical officers recognise their value and admire their efficiency, we must be careful, at the same time, to define very accurately the nature of their duties and their responsibilities. They must not be regarded as adequate authorities in one of the most difficult branches of medicine. Unless their work is controlled and inspired by a medical officer with knowledge infinitely greater than their own, then that work will not often prove efficient, and not infrequently all their efforts will do more harm than good. We must not be misled by the analogy of the midwife, who has to be trained only in certain definite manipulations and can be left to carry on her work unaided to a great extent. I would point to the work of Dr. Truby King as an instance of the inspiration which the trained health worker and trained nurse can catch from the expert medical officer. Now, if I may say so, I think that some of Dr. Truby King's work was open to criticism. To my way of thinking he did not sufficiently differentiate between preventive work and curative or therapeutic work, and he seems to me at times apt to ascribe to his dietetic prescriptions success which was really to be ascribed to the high standard of hygiene and nursing in his hospital, and, still more, to the power of his own dominating personality acting upon the mothers. With him it was often the prescriber rather than the prescription which was effective. But no one with whose work I am acquainted approaches near to Dr. Truby King in his power of vitalising the routine work of his assistants and subordinates, and of filling them with his own confidence and power for good. Dr. Truby King, if he were here, would not resent my remarks I feel sure. His work has been so great that it can allow each one of us to deduct what is displeasing to him without doing it much damage. Now, no one, I think has studied the work of others more carefully than Dr. Truby King. In all countries, in the States, in this country, in France, in Germany, he has sought and found inspiration in the work of others, and when he has found it he has handed it on to all who are associated with him. Let there be no mistake about it, the success of the whole movement depends, not so much on the training of health visitors, so much discussed at present, as upon the training, capacity, and enthusiasm of the medical officers. The value of the visitor depends upon the use the medical officer can make of her. We have behind us a Ministry of Health which is sympathetic, and which, if it could always do what it wanted, would, I think, always act wisely. We have a magnificently organised Public Health Service to work with; we have a better educated and a more understanding body of health visitors and trained nurses than any other country, and with all these advantages, have the medical officers of centres as a whole throughout the country occupied the position they ought to occupy? I know that there are innumerable and admirable exceptions, but in far too many instances it is taken for granted that anyone will do for an infant centre. The medical officers at present are a heterogeneous body. Young and recently qualified officials, who know little of children in sickness and still less of children in health, whose opinion can carry little weight, either with the mothers or the health visitors, men skilled in general practice, who find the absence of pathological interest unstimulating, medical officers of health who, though very well versed in the study of faults of environment, have less knowledge of the common reactions of the child to these faults, and whose manifold duties only permit them to maintain a nominal control over the health visitors who are left to pursue the work according to their own ideas. None of these is likely to conduct an infants' centre satisfactorily. Still less is the young practitioner who finds the income which can be culled from perfunctory attendance at one or more centres useful to live on while experience is acquired in some speciality which is more attractive. From none of these, and they are far too numerous, will the work gain credit.

THE DIFFICULTIES OF THE WORK.

But I wish to speak only of those of us—happily the greater number—who are in earnest in our endeavour. Our task is very difficult. There is no speciality more neglected in our schools and our universities than that of the study of childhood. It is a subject which it is difficult to learn, difficult to teach, and difficult to write about. The literature is not adequate to the theme. Certainly the text-book for medical officers of centres has yet to be written. It is not open to many of us to tour the country and visit other centres in search of inspiration and knowledge or to indulge in a wander year abroad. But I feel sure it is due to the relative isolation in which we work that so little clinical observation of value has proceeded from infant welfare centres, and that the advice given at different centres is often so flatly contradictory. We must urge the institution of undergraduate and post-graduate courses, though I am not at all clear who is well fitted to conduct them. Salaried appointments are now so numerous that a special diploma in child welfare must shortly be instituted and carry with it better pay. But above all I think we should join together for free discussion among ourselves. We have the reputation of a young speciality to make, and there is no good blinking the fact, it is not made yet. We are not yet equal to our opportunities. To deal wisely and successfully with each mother and each child calls for professional gifts of the very highest order. To determine, in each case where success is hanging in the balance, how far inherited tendencies or congenital weakness is responsible; how far dietetic errors, whether excess or quantitative faults in the construction of the diet; how far faults of management and handling; how far infection and of what parts—all this demands a wide experience. Moreover, since it is through the mother and by means of her alone that we can work effectually, the study of the mother must be as intimate and careful as the study of the child. She must be inspired with full confidence in us; she must be allowed free speech, and every word that she says is of importance if only we can find the key to the riddle of her cryptic sayings. Always she has observed aright; seldom can she describe what it is that she has observed, and to this she must be helped. Only when she has had her say is it the turn of the medical officer to expound and draw the moral. The explanation offered should fit all the facts, and it should fit them so accurately as to carry conviction. Let me finish with a concrete example to illustrate my meaning. A child suffers with constipation and pain on defæcation, with loud and prolonged crying when put to stool. As the mother talks one learns that the same resistance is shown to taking food. Although urged and coaxed, the child resolutely refuses to eat meat, or greens, or milk pudding. On being put to bed there is crying and resistance, and sleep is refused for many hours. One learns, too, that the so-called constipation is quite uninfluenced even by the strongest purgatives, unless actual diarrhœa is produced. On the other hand, when the child visited an aunt in the country, the mother of a large family, the constipation disappeared for the time being, to relapse on his return to London. The mother is much distressed by the child's complaint, and shows a disposition to cry even when talking over it. She has no other children. The so-called constipation and painful defæcation are here but one of many instances in the daily life in which that child shows the common symptom of nervous unrest in childhood, "negativism." Habitually he does the opposite to what he is so urged and appealed to to do. His little mind has been concentrated on the difficulty. His mother's over-anxiety has communicated itself to him. The action and interaction between mother and child have produced a neurosis which can easily be overcome if matters are explained and helpful suggestions are made to the child by a mother whose confidence has been restored. In that complaint of constipation how numerous are the points that we must explore. We have to try to determine if there has been lack of training and want of routine, or whether there has been excess of training, excess of insistence, and over-anxiety, as in the instance quoted. Or, again, is the constipation symptomatic of inanition and underfeeding, or is it due to faults in the construction of the diet, such that the fermentative processes in the intestine are too little developed and the putrefactive processes encouraged? Or is it more a question of what Dr. A. F. Hurst calls "dyschezia"—difficulty in the mere muscular act of defæcation from abdominal distension and general muscular malnutrition? To control this and many more difficult disturbances a routine dose of olive oil or syrup of figs will certainly not be sufficient.

CONCLUSION.

To deal with the hundreds of such problems which present themselves in our daily work requires understanding and requires time. Without free speech on both sides, from mother and from doctor, nothing will emerge. It is easy to pour out stereotyped good advice on points of hygiene and diet; it is easy to laugh at or deplore ignorant, fanciful prejudices of the mother; it is easy to dabble in laxatives and cough mixtures, to confiscate all dummies and most prepuces—easy, but quite ineffective. To be understanding with the mothers, to inspire and make useful the work of assistants, to train oneself to greater usefulness—none of these things are easy. Can we not help each other best by free discussion amongst ourselves?

THE TREATMENT OF SYPHILIS BY THE ANTISYPHILITIC SERUM OF QUERY.

BY J. DOBRIANSKY, M.D. VIENNA AND PETROGRAD;
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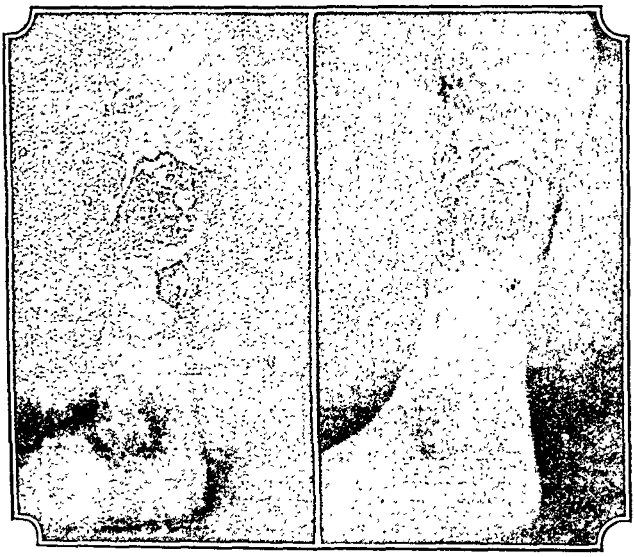
THE value of mercurial preparations in the treatment of syphilis is undoubted, but their action is limited to certain stages in the course of the disease. The utility of mercury in the later manifestations of syphilis of the nervous system, such as tabes dorsalis and dementia paralytica, is very slight; not only does it fail to retard the progress of these diseases except in the very slightest degree, but it also fails even to give relief to the more obvious and distressing symptoms, such as lightning pains, progressive optic atrophy, or ataxia.

Salvarsan and its various preparations have, in our hands, been equally ineffective. While in the early stages of syphilitic infection salvarsan has a markedly destructive action on the syphilitic virus, it often fails entirely to prevent relapses, and later involvement of the nervous system is only too frequent. Not only are the later nervous manifestations of syphilis resistant to mercury, salvarsan, and the iodides, but certain gummatous ulcerations of the skin are equally unaffected, and may be treated for months without benefit by the usual remedies.

In view of the remarkable results reported from France of treatment of syphilis by Dr. Query's serum, a trial of the serum was made in the dermatological department and in cases of nervous disease at the London Hospital. Dr. Query states that his serum is prepared by inoculating monkeys with the filtered cultures of the organism of syphilis on bouillon. When the serum of the monkeys gives a strong positive Wassermann the animals are bled and the serum is collected and preserved in ampoules. Metchnikoff and Neisser had attempted to prepare an antisyphilitic serum by inoculating monkeys with the culture of Schaudinn's spirochætæ, but Query used the toxin prepared from filtered broth cultures.

The following cases were treated with Query's serum after complete failure of the recognised methods of treatment to relieve their symptoms. The relief of symptoms produced by the serum was marked, but it is, of course, impossible to speak of the permanence of the cure until the cases have remained under observation for some years.



FIGS. 1 and 2.—Showing condition of ulceration before and after treatment with Query's serum.

CASE 1. *Gummatous ulcers of the leg of long standing, with hyperkeratosis and deafness.*—M. R., aged 69, first attended the dermatological clinic of Dr. Sequeira for tertiary syphilitic ulceration of the left leg on Dec. 12th, 1917. Hyperkeratosis around the left ankle was well marked. The patient was very deaf. She was treated by injections of salvarsan, neokharsivan and galyl, and in all received 11 injections between Dec. 14th, 1917, and Sept. 9th, 1919. In all 4·5 g. of arsenobenzol were injected. During each period of injection she had rest in bed and local treatment with fomentations and antiseptic dressings. From Dec. 21st, 1917, to Dec. 4th, 1919, she received in addition mercury and iodides internally. Comparison of photographs in December, 1917, and January, 1920, showed that no progress had been made in the healing of the ulcer. The patient was still very deaf and the hyperkeratosis round the left ankle was still present.

Treatment with Dr. Query's serum was commenced on Jan. 28th, 1920, when the serum was injected subcutaneously over the right biceps; the patient was not put to bed. A dry dressing was the only local treatment and the patient continued her ordinary avocation of charwoman. By Feb. 11th 20 injections of serum had been given and new photographs were taken, one of which (Fig. 2) may be compared with Fig. 1, taken before treatment with the serum was started. The larger ulcer is now filled up with red firm granulation tissue and has a dry glazed surface. The smaller ulcer is now flush with the surface and is smooth and dry to touch. The hyperkeratosis around the left ankle is markedly less, and in addition the patient's hearing has now become normal.

Dr. Sequeira made the following note on March 3rd, 1920. "This case had proved intractable to treatment by intravenous injections of arsenical compounds and by mercury and iodides internally. The improvement which followed the injections of Dr. Query's serum was remarkable, the ulcers are filled up and contracted, but the most striking feature was the recovery of the patient's sense of hearing. In view of these observations I am anxious to extend the use of the Query treatment to other cases of this intractable type."

CASE 2. *Tabes dorsalis with pronounced ataxic symptoms.*—B. G., aged 47, contracted syphilis in 1891. For the past ten years he has suffered from severe lightning pains in his lower limbs and occasional incontinence of urine. For the past four years he has had great difficulty in walking and can just hobble about with two sticks. Romberg's sign is very marked. When his eyes are closed he is quite unable to stand and falls over at once. He showed the typical tabetic gait, the knee-jerks were absent, and Argyll Robertson pupils present. The Wassermann test on Jan. 15th, 1919, was positive. A long course of mercury and iodides had failed to give any improvement and the ataxia was getting rapidly worse.

Starting from Feb. 14th, 1920, 5 intrathecal and 20 hypodermic injections of Query's serum were given. On March 14th there was a marked improvement in the patient's gait. He walked quite easily without his stick at a good pace. Romberg's sign was absent and he walked easily up and down the ward with his eyes closed.

CASE 3. *Tabes dorsalis with intractable lightning pains.*—J. H., aged 52, had suffered for ten years with violent darting pains in the legs, so severe that she had threatened to commit suicide. She had had a long course, over two years, of mercurial and iodide treatment. From August, 1919, to January, 1920, she received nine intravenous injections of salvarsan. The pains were no better; in fact, were steadily getting worse. On examination in February, 1920, the knee-jerks and ankle-jerks were found to be absent. The Wassermann reaction was strongly positive. The pupils were normal. She had had one miscarriage and no children. The only way the patient could obtain relief from the pain was by taking 7 gr. tablets of pyramidon. She took as a rule 35 g. a day to keep the pain under control. After seven injections of Dr. Query's serum the frequency and severity of the pains had markedly diminished, so that she was able to get through the whole day without resorting to the pyramidon. Her general condition had also improved.

Remarks.

For this preliminary note on the treatment of syphilis by Query's serum cases have been selected with prominent symptoms of the tertiary stage which have proved resistant to the recognised methods of treatment. The manner in which these intractable symptoms have been at once relieved by Dr. Query's serum is most striking, and, in our opinion, the serum deserves a thorough further trial in the treatment of the tertiary stage.

CENTENARIAN.—The death of Mrs. Sarah Evans, Llandysiliogogo, South Wales, aged 102 years, is announced.

LITERARY INTELLIGENCE.—Under the title of "Diathermy in Medical and Surgical Practice" Dr. Claude Saberton, honorary radiologist to the Harrogate Infirmary and to the Royal Bath Hospital, Harrogate, has written a guide to students and practitioners who wish to master the technique. The book is announced by Messrs. Cassell and Co. for early publication as an addition to the Modern Methods of Treatment Series.

RECURRING SARCOMA OF THE SMALL INTESTINE.

BY W. H. BATTLE, F.R.C.S. ENG.,
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ONE of the latest and most informative papers on the subject of sarcoma of the small intestine is written by Dr. John Speese.[1] It is probable that the round-celled growths form about 50 per cent. of the various forms in which it appears, and the site is usually the ileum. From the fact that an actual closure of the lumen of the bowel is seldom met with, and the contents of it can pass until a late period, operation, which is usually for obstruction, is done when the disease is advanced, and the tumour, which has a tendency to drop into the pelvis, is only discovered when the patient is on the operation table. Its progress before discovery and pelvic position lead to involvement of the bladder in many.

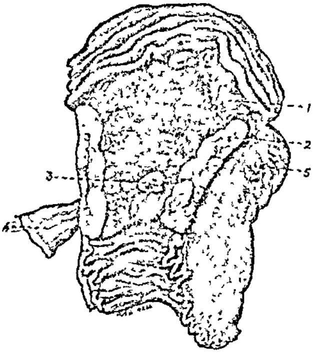
The importance of intussusception in the previous history is recognised, for many cases are published in which the intussusception was started by a growth. Kassmeyer collected 284 instances of this, of which 85 were malignant—59 carcinoma and 26 sarcoma. The symptoms are, however, usually chronic, and not those which are pathognomonic of the ordinary intussusception. In the case described below no tumour was found, nor did the sarcoma develop at the site of either of the attacks of intussusception. In the second attack a thickening was found, of an inflammatory character, at the apex of the intussusception, but when operation was performed 5½ months later for the growth it had not increased but diminished in size.

First attack of intussusception.—F. R., a girl, aged 8, was admitted to St. Thomas's Hospital on May 17th, 1913, with abdominal symptoms. For 24 hours she had suffered great pain in the abdomen, with frequent vomiting. Nothing had passed by the bowel during that time. She looked pinched and was evidently very ill. Temperature 100° F., pulse 100, respiration 24. She was subject to constipation. Examination of the abdomen showed a movable irregular mass in the right side; the iliac fossa below felt empty (signe de Dance) and was tender on pressure, but the abdominal wall was everywhere soft. Examination per rectum showed nothing abnormal. The abdomen was opened through the right rectus muscle (separation of fibres) and a large ileo-colic intussusception reduced with some difficulty after it had been brought outside. A hard button-like patch was left at the apex. She left on May 30th, recovery having been uneventful.

Second attack of intussusception.—On June 28th she returned from a convalescent home. Next day she had abdominal pain and vomiting; the bowels acted twice, but there was no slime or blood in the motions. The attacks of pain were severe and intermitting, causing her to roll about and cry out. The abdomen was rather distended. There was no visible peristalsis. On the 30th the bowels had not acted, although a glycerine enema had been given. In the afternoon the abdomen was reopened along the line of the old scar. The small gut was considerably distended and there was some clear serous fluid in the peritoneum. The mesenteric glands were enlarged. The intussusception was 2-3 ft. above the ileo-cæcal valve and about 4 in. long. It was easily reduced in part; the last portion was, however, much thickened, and a complete reduction was impossible, firm adhesions extending between the peritoneal surfaces. The intestinal contents passed this section with difficulty. Lateral anastomosis above and below this point was performed. The mucous membrane at the loop when examined through one of the incisions appeared somewhat swollen and sloughy. There was no evidence of tubercle, and von Pirquet's test was negative. She left the hospital well on July 26th.

The subsequent history of this patient is most interesting.

First excision of growth.—On Dec. 14th of the same year she came to the ward in which she had previously been a patient to request permission to be present at the usual ward festivities at Christmas. Whilst at the hospital she had an attack of abdominal pain and vomiting. Examination showed the patient to be suffering from some degree of distension of the abdomen, with peristalsis. A history of similar attacks over a period of three weeks was obtained. She was detained, and an operation performed the same afternoon. The line of the previous incisions was selected as it was not very strong. Some thickening could be felt under the upper end of the scar, and this proved to be the apex of the intestine forming the part which had been short-circuited at the second operation. There were one or two adhesions between the omentum and other parts, and when the pelvis was explored a tumour was found which was adherent to the summit of the bladder. It was some distance from the point of lateral anastomosis, encircled the small bowel, but did not quite occlude its lumen. The wall of the bowel above and below could be pressed into it, its shape, internally, resembling that of a dice-box. There was a bag of omentum adherent to it. (See figure.) The mesenteric glands were enlarged over a large area. After extension of the incision in the abdominal wall it was found possible to cut away the growth from the summit of the bladder, the wall of which was then sutured. The portion of gut affected by the growth was excised and the incision carried into the mesentery so as to remove as many glands as possible, and an end-to-end anastomosis carried out. The glands were much too numerous for a complete operation. The liver was normal. The small intestine above the growth was dilated and congested, that below smaller than normal, but there had evidently been no complete obstruction. There was a good deal of shock after the operation, but the bowels acted on the 17th, and there were no abdominal symptoms.



Primary round celled sarcoma of the ileum (The Acute Abdomen, p 254) 1 Raised edge of growth, not hard or everted. 2 Base extending to and involving peritoneum 3 Area which had given way. 4. Omentum closing opening. 5 Part cut away from bladder. Messrs. Constable and Company have kindly supplied the illustration.

Mr. Shattock reported that the growth was a round-celled sarcoma. At one point the growth had necrosed and here the omentum was adherent externally, so preventing extravasation of contents. On Jan. 20th, 1914, exploration was again performed to see if it was possible to excise any of the enlarged glands, but although some of them were smaller they were extensively affected, and one or two nodules of growth could be felt. Ten days later the use of Coley's fluid in increasing doses was commenced. She left for a convalescent home at Shooter's Hill (D'Erlanger), the treatment was continued by Dr. J. G. Duncanson, and she improved and put on weight. The patient was examined from time to time, and although there was no apparent disease in the abdomen it was considered advisable to readmit her with the view of a further course of Coley's fluid. She was under treatment from Jan. 1st to March 31st, 1916. There was some reaction to Coley's fluid, but nothing excessive. She was readmitted on July 14th, 1916, complaining of abdominal pains of a colicky nature, without vomiting, which came on about once a fortnight. In addition, examination of the abdomen showed the presence of several nodules the size of acorns, also increased resistance in the lower part and towards the right.

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[1] Annals of Surgery, May, 1914, p. 727.

Second excision of growth.—As it appeared probable that there was growth causing some obstruction an exploration was done five days later. A large mass, involving the small intestine about 6 in. from the cæcum, was found in the right side of the pelvis. This was apparently a recurrence which had spread from the lymphatics or glands bordering on the former section of mesentery, there being a swelling larger in the mesentery than the portion which encircled the intestine. As a resection of the growth with a wedge-shaped piece of the mesentery involved division of the bowel close to the ileo-cæcal valve, it was thought best to close both ends and join the lower end of the ileum by lateral anastomosis to the lower part of the cæcum. Many glands were scattered about the mesentery, and these were the nodules which had been felt through the abdominal wall. There were no separate nodules anywhere independently of the glands, and the bladder was normal. The lumen of the gut was narrowed to the size of a little finger. This patient has been kept under observation, and the resident assistant surgeon, Mr. P. H. Mitchiner, tells me that there is no evidence of recurrence at the present time (March 30th, 1920). She has grown considerably and enjoys good health, but the abdominal wall on the right side is thinned from atrophy of the rectus muscle.

Remarks.

Although it was recognised at the first operation that the growth was a sarcoma, and that the glands were secondarily affected, these enlargements were so generally diffused that any attempt to extirpate them would have been hopeless and probably fatal. It would have involved removal of many feet of intestine, and there was a possibility that dissemination of growth in the glands was not so extensive as appeared. Another reason against doing more was the presence of one or two lumps in the peritoneum, which appeared to be growths of a character similar to the original one. An interesting feature in the case is the delayed recurrence, its removal, and the unusual prolongation of life which has followed treatment. Some credit for this (I am of opinion) must be attributed to the use of Coley's fluid after operation. Even now, nearly seven years since the beginning of her abdominal history, she appears in good health. The illustration shows the value of the omentum in intestinal perforations.

ERRATUM.—In the last issue of THE LANCET, p. 876, in an annotation on Dr. F. G. Cawston's paper on the "Treatment of Bilharzia Disease," Dr. Cawston is alluded to as the first Streatfeild research scholar, but no lecture has yet been delivered under the Trust.

WARNEFORD HOSPITAL, LEAMINGTON.—Owing to the serious state of the finances the governors of this hospital have decided to adopt the principle of payment by patients. A committee has been appointed to decide what form the innovation should take, but it is understood that it will be on a purely voluntary basis, respect being paid to the means of the patient. Last year out of 1026 patients treated only 29 showed their thanks by monetary contributions.

INFANTILE DIARRHŒA AND VOMITING:

THEIR PROPHYLAXIS AND TREATMENT.

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AT this time, when our country is faced by the urgent necessity of repairing the ravages of war, any subject bearing upon the preservation of infant life becomes of the utmost importance. The object of this paper is to show how those distressing and dangerous complaints, diarrhœa and vomiting, may be controlled in the nursery by a regime of cleanliness as nearly allied to that of the operating theatre as the conditions will allow. Having access to the records of a home for children where these principles were put into practice, I have had good opportunity of studying the results of their adoption.

The diseases of infancy are among the most trying by which the practitioner is faced, and perhaps of all these diseases the two which form the subject of this thesis are the most difficult. In themselves they are by no means always mortal, but if prolonged, as so often happens, they are apt to lead to serious damage to the alimentary tract which may have a fatal result.

The Causation of Diarrhœa and Vomiting.

The great majority of the diseases of infancy and childhood are caused by bacterial infection. At the same time opinions expressed in text-books as to the infective nature of infantile diarrhœa are very divergent, while the infectivity of vomiting receives practically no attention. I intend therefore to deal first with diarrhœa and its treatment, and afterwards to produce evidence of the infective quality of vomiting and to describe the management of such cases.

The following authors may here be quoted to show the divergence of opinion mentioned above.

Ralph Vincent[1] states: "Epidemic diarrhœa is in no sense of the word an infectious disease and cannot be conveyed by contagion."

Frederick Taylor,[2] and earlier writers,[3] make no mention of infection, but attribute the disease to a variety of causes such as food and teething.

Savill[4] attributes it to various causes, but does not specify infection particularly.

Holt[5] gives five forms of diarrhœa, the fifth being headed, "Diarrhœa of Infective Origin," under which head he says: "The source of infection may be from without, bacteria being introduced with the food or water or accidentally; or it may be from within, where the non-pathogenic bacteria normally or frequently present in the intestines develop pathogenic properties."

Osler,[6] in a paragraph on the relation of bacteria to enteritis in children, says: "In infantile diarrhœa the number of bacteria that may be isolated from the stools is remarkable. Brooker has discriminated 40 varieties, the greatest number of which were found in cases of cholera infantum. The two constant forms noted above (*Bacterium lactis aerogenes* and *Bacterium coli commune*) do not disappear in the diarrhœal stools. No forms have been found to bear a constant or specific relation to the diarrhœal fæces, such as the two above mentioned do to the healthy milk fæces, the bacteria of the *proteus* group are most frequent, and possess pathogenic properties. All the varieties develop and produce important changes in the milk, which have been dealt with fully by Brooker in his exhaustive monograph (Johns Hopkins Hospital Reports, vol. vi.). This author concludes that in the diarrhœa of infants 'not one specific kind, but many different kinds of bacteria are concerned, and that their action is manifested more in the alteration of the food and intestinal contents and in the production of injurious products than in a direct irritation upon the intestinal wall.' "

Eric Pritchard[7] says: "The commonest cause of diarrhœa is the development within the bowel of an abnormal bacterial flora."

Ballard[8] considers that the essential cause of diarrhœa "is intimately associated with the life process of some micro-organism not yet detected, captured, or isolated."

Investigation of Results of a Strict Regimen.

We have, then, a variety of opinions on the subject. The records of the home mentioned above (Upwick Vale Home, Eastbourne), opened in 1892 and continued until 1916 (25 years), where an average of 17 infants, from 1 month to 2 years old were lodged, fed, and clothed every year, show that in the first three years diarrhœa was seldom absent, and six deaths from that cause occurred. For the remaining 22 years no case of diarrhœa originated in the home, and there was not a single death from that cause.

How can this remarkable change in the incidence of the disease be accounted for? During the third year a very strict system of dealing with the children was established and rigidly adhered to, with the exception of certain occasions mentioned later. This system was as follows:—

All new cases were isolated on arrival until such time as it was certain that their motions were normal. A special room, provided with washing apparatus and slop sink, was set apart to which all babies had to be taken whenever the napkins required changing, and the room was regarded as much as an unclean place as the w.c. used by the adults. As the napkins were removed and placed immediately in a disinfectant, the nates were washed and bathed with a disinfectant, the nurse washed and disinfected her own hands and those of the child, and then put on the fresh napkins. A special nurse was detailed for this duty, and she was not allowed to take part in the preparation and distribution of food to the children. The food was kept in a larder and was not allowed in any room used by the children except at meal-times. The food up to eight months consisted of whole milk, water, and sugar, mixed in proper proportions and sterilised. After eight months or even earlier bread, oatmeal, potatoes, gravy, skimmed milk, and dripping and bread were given. Orange juice was given regularly, when the antiscorbutic and growth-encouraging properties of fresh fruit became known, though their use was empirical at that time. The mothers were provided with a basin of disinfectant for use at night when changing the napkins and before feeding the baby.

From the time of the establishment of this system, apart from new admissions, there was absolutely no diarrhœa in so far as the system was rigidly adhered to. On two occasions a temporary matron allowed some relaxation of the rules, when diarrhœa at once appeared. On this being discovered the rules were again strictly enforced, and within 72 hours the diarrhœa disappeared. No form of medicinal treatment beyond an initial dose of castor oil was found necessary.

In the cottages attached to the home, where infants from 2 to 5 years old were sent, the same routine was observed though the supervision was not so strict. Only one epidemic of diarrhœa started there, and on investigation it was again found that some relaxation of the rules had been allowed, and the children were attending to themselves after defæcation. The children were at once paraded, and it was found that all the clothes that came in contact with the nates were soiled with fæcal matter. The soiled clothes were taken away and new provided, and the system of washing and disinfection again established. The epidemic stopped absolutely in 48 hours, with no other physic than a dose of castor oil.

Here we have surgical cleanliness applied to the nursery for the prevention and treatment of diarrhœa, with the result that diarrhœa is stamped out without the aid of drugs.

From these facts we can but conclude that the diarrhœa of infants is not only infectious but autogenous, and that by the enforcement of surgical cleanliness and isolation of duties it can be avoided and checked.

Having come to this conclusion, after a brief summary of the system, it may be well to consider some of its chief points in detail. These points are five in number. They are:—

(1) The food was kept in a larder and, except at meal-times, was out of all contact with the children and their service.

(2) A separate room was used for the changing of the napkins and, where possible, a separate nurse for toilet.

(3) The nates were washed and bathed with a disinfectant.

(4) The nurses' and babies' hands were disinfected.

(5) The napkins were immediately placed in a disinfectant.

The significance of (1) is self-evident, and would be hardly worthy of note were it not that babies' food is so frequently exposed to the risk of contamination.

With regard to (2), though the adult is provided invariably with a w.c., the infant has frequently to use its combined larder, living room, and dining room for the purpose, and hence has an ever-present source of infection.

(3) and (4) I have not been able to find any author on this subject or on medicine in general who has pointed out the fact that, with no more than the usual precautions taken in the cleansing of the nates after defæcation, whether in the adult or the infant, and, however carefully carried out, the odour of fæces can be detected on the hand used. This is true in the case of the infant even if the greatest care is taken by the nurse, when removing and folding the napkins, not to bring her hand in the least contact with fæcal matter which may be visible on the napkin. It may also be observed that wherever the napkin is placed even for a few moments, with whatever care taken that no visibly contaminated part comes in contact with the surface on which it rests, this surface takes up the odour of fæces. The hands of the nurse as soon as she touches the napkin to remove it become a source of infection, as may any part of her dress which may come in contact with them. Infection from these sources may reach the food or mouth of the infant. To wash the hands is easy and therefore is insisted on, but to change the dress every time the napkin is changed is asking too much of the nurse; hence she must not come in contact with the infant's food. The baby's hands need washing not only after it has its napkins changed but at frequent intervals, as it is by them that septic matter most frequently reaches the mouth.

(5) The significance of placing the napkin in disinfectant is, to my mind, of great importance, apart from the fact above mentioned, for reasons based on the opinion of some competent authors on the ætiology of the disease. Ralph Vincent says: "The disease is most prevalent and most fatal in the third quarter of the year; the higher the temperature of the late summer the greater the prevalence, particularly if high temperature be associated with little rain." Ballard[8] states that "the essential cause of diarrhœa resides ordinarily in the superficial layers of the soil, where it is intimately associated with the life-history of some micro-organisms; ...... that the vital manifestation of such micro-organisms are dependent, among other things, perhaps principally, upon conditions of season." Holt[6] tells us that "Observations in a large New York dispensary extending over ten years showed an enormous increase in diarrhœa, rising from February (289 cases) to July (12,468 cases) and falling by the middle of October (1723 cases)."

These statements are in accordance with the commonly observed rule that infantile diarrhœa is more frequent in the hot months. During the hot dry months the fæcal matter is more rapidly dried and reduced to dust, which is easily disseminated by draught and wind. It is obvious that the disease may become more widespread in the summer months. It may be noted in this connexion that Ballard[8] remarks that "such micro-organism is capable of getting abroad from its primary habitat, the earth, and having become air-borne, obtains opportunity for fastening on some non-living organic material." It is possible, in view of the above arguments, that the earth is not the original habitat from which the micro-organism becomes air-borne.

Conclusions as Regards Diarrhœa.

Considering again the relative importance of the five points given above, we see that the larder is but a means of preventing contamination of food by germ-laden dust and flies, and hence infecting the child; the separate room is but a matter of treating the child with the same decency and care as is meted out to the adult. If the washing of hands and nates were neglected, though the neglect would leave open a grave source of infection to the *individual* child, in the hot dry months the nates and hands are always damp to a greater or less extent with perspiration, and hence the fæcal matter does not so readily dry as to form a great danger to others. But the placing of napkins in disinfectant puts the largest and most easily dried source of infection of the community in general completely out of court, and it is for this reason that I consider this point of greater importance than the others as far as the safety of the many is concerned. It is interesting here to note that Holt[5] states that "the enormous increase in the number of cases occurring in the summer months does not have reference to any single form of diarrhœa, but to all forms"—a conclusion which, I think, adds emphasis to this point, since the dried fæcal material will disseminate many micro-organisms that inhabit the bowel.

Vomiting.

Having considered in detail the system as applied to diarrhœa, the similar system adopted at the home for the management of vomiting may now be considered. I do not refer to the simple regurgitation of almost unaltered food due to repletion, but the foul, acid vomiting which is so dangerous to the child and distressing to those who have the care of it. The system was as follows:—

Any child vomiting acid vomit was *immediately* removed from the nursery by the person noticing it and taken to an isolation room; its clothes were removed and the child bathed completely. When this had been done it was put into clean clothes. No milk was given for several hours, and the mouth was washed out at frequent intervals with a solution of borax in water. This sterilisation of the mouth is essential, as otherwise the infected mouth would infect the sterile milk.

A further possible source of infection were the spots of clean milk which get unavoidably splashed on the child's clothing during feeding. As a prophylactic measure, when the children's clothes were laundered they were, before being ironed, rinsed in borax and water; this precaution is particularly necessary in the case of bibs.

The use of this system provided a means whereby this dangerous complaint was held completely in check. Considering that the means used were those employed for the avoidance of bacterial infection and that they were effective, it may be urged that this is an indication of the infective nature of the disease.

In connexion with this point the possibility of the parent or nurse as a source of infection has to be considered. It seems horrible to suggest that any of these people may be a cause of so dangerous a complaint in their offspring or charge, but unclean hands or face, a foul mouth, or otorrhœa may well cause a disaster to the child. A case in point arose at the home. A child arrived in a pitiful condition due to gastric and intestinal disturbance, and in course of the routine was isolated and placed under the strict system of the home. As the child did not benefit in the usual manner, all possible causes for the persistence of the trouble were investigated. It was found that the mother was devoted to the child and was constantly kissing it. When examined she was found to have a mouth full of carious teeth. A promise was extracted that she would not kiss the child, and her teeth were attended to. The child's rapid recovery was the sequel.

If the result of the system as a whole is not proof of the infective nature of the diseases under consideration, this case gives proof of it as nearly as possible without bacteriological investigation.

Surgical Cleanliness Adapted to the Nursery.

Here, then, we have a system, for the principle governing that for diarrhœa and vomiting is the same, which controls two of the curses of infancy, and it is nothing more than the adaptation of surgical cleanliness to the everyday life of the nursery. It may be objected that the trouble involved renders the system inapplicable to the private patient. But of all people the private individual needs most training in the principles laid down in this paper. Of modern institutions which deal with babies, the great majority have trained nurses or matrons who insist on a standard of cleanliness in dealing with the babies being maintained. But in the home circle it is surprising what negligent and disgusting habits are indulged in. Who has not seen the mother or nurse who sucks the nipple of the bottle or comforter before giving it to the child? And there is the still more disgusting practice frequently used, though rarely in public, as the other is, of inserting the finger into the napkin to ascertain if the baby has passed water or defæcated, after which, whether the answer is in the affirmative or negative, the hand is by no means always washed before it handles the bottle or breast to feed the baby. These and similar practices, such as the above system is designed to combat, are used frequently in the lower classes, and are by no means entirely absent in the better class nurseries.

Experience shows that if it is explained to those in charge of the child that such practices may start disease, and that the adoption of the system, though apparently a troublesome one, may really be a saving of trouble and danger in the end, it is gladly adopted and soon becomes a matter of routine.

Its apparent effect on the death-rate from all causes is notable. I have worked out figures for comparison to the best of my ability from the figures given in the last Registrar-General's (1916) Report for Infant Mortality in the whole of England and Wales for the years 1892–1916—taking, that is, the years during which the home was open. I have been unable to get the exact numbers of infants in the home for the first three years separate from the remaining 22 years during which the system was in operation. The total number for the 25 years was 433—that is, an average of 17·35 per annum. For the whole of England and Wales in those years the deaths averaged 13·2 per cent. per annum from all causes, while in the home they were 7·8 per cent. The deaths in the home during the first three years amounted to 0·41 of the total for the whole 25 years, and were only included owing to the difficulty of separating the numbers in the records. Had they been omitted, the percentage for the 22 years during which the system was in operation would compare still more favourably with that for England and Wales. Also it must be borne in mind that the deaths from diarrhœa for the last 22 years were nil in the home, while the Registrar-General's figures work out at 2·25 per cent. for the whole of England and Wales.

If, then, it is possible, and I have shown it is possible, to apply the system to the everyday life of the nursery, two of the many great dangers to infant life will lose their terrors.

References.—1. Ralph Vincent: Acute Intestinal Toxæmia of Infants, 1911. 2. Frederick Taylor: The Practice of Medicine, 1908. 3. Fagge: Principles and Practice of Medicine, 1888; Wist: Diseases of Infancy and Childhood, 1884. 4. Savill: A System of Clinical Medicine, 1908. 5. Holt: Diseases of Infancy and Childhood, 1903. 6. Osler: Principles and Practice of Medicine, 1898. 7. Eric Pritchard in Practitioners' Encyclopædia of Medicine and Surgery, 1912. 8. Ballard: Supplement to Report of Medical Officer to Local Government Board, 1887.

HEART-BLOCK:

A RECORD OF TWENTY CASES.*

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FROM the year 1761, when Morgagni first described "Two Cases of Epilepsy with a Slow Pulse," which were in all probability examples of what was subsequently known as Adams-Stokes disease, interest has always centred round cases of heart-block, which are sufficiently uncommon to be interesting, while sufficiently common to be important. The writer therefore ventures to append an analysis of 20 cases of complete heart-block which have occurred within his practice during the past four years, in the hope that they may lead to a more complete appreciation of the condition.

The 20 cases were all carefully recorded. They included 15 males and 5 females, whose ages ranged between 4 and 74; the male cases ranging from 4 to 74 and the female cases from 27 to 65 years of age.

Family history.—Two of the cases were mother and son, and it is interesting to note in this connexion that both the grandmother and an uncle were said to have heart trouble with slow pulses. The Wassermann reaction was negative in both these cases. Another case was reputed to have had congenital heart trouble, and one brother and the grandmother were said to have had slow hearts. There were, however, none of the ordinary manifestations of congenital heart disease.

Personal history.—One man gave a history of rheumatic fever 40 years ago, one dated his trouble from an attack of "septic poisoning" followed by rheumatism, and one woman had a history of quinsy and tonsillitis. One man gave a history of syphilis 20 years before and had a definitely positive Wassermann reaction. Eleven of the cases gave negative Wassermanns. Six definitely attributed their condition to influenza. One case (a woman) gave a history of scarlet fever and one of diphtheria. Another case was obviously an acute myocarditis.

Symptoms.—The symptoms most commonly complained of were dyspnœa, "fits," pain, palpitation, vertigo. Fifteen of the cases complained of shortness of breath. Ten gave a history of definite fits (one having had them for over 19 years), while 10 complained of pain in the chest. "Palpitation" was complained of by 7 and appeared to be violent action of the heart due to extra-systoles. Four complained of vertigo.

Associated valve lesions.—Fourteen out of the 15 male cases had a systolic murmur at the apex conducted out to the axilla. One had, in addition, a presystolic murmur, and at times a diastolic murmur. In one case there was associated auricular fibrillation, and one case had apparently no valve lesion at all. As regards the five women, four had an apical systolic murmur conducted outwards, and one had a presystolic or diastolic murmur as well as a systolic.

It would appear, therefore, that 19 out of the 20 cases had mitral regurgitation, and 2 had mitral stenosis in addition.

The pulse.—The pulse-rate ranged from 10 to 64, and every case periodically exhibited an irregularity due to ventricular extra-systoles. The volume was full and the tension about normal.

Blood pressure.—This was usually well maintained, often slightly above the normal. A rise in blood pressure was frequently found to precede a fit. The lowest blood pressure recorded was 110 and the highest 180.

Work reaction.—Work reaction was good in most cases to low levels. The static test was also good.

Electrocardiographic examination.—Nineteen out of the 20 cases were electrocardiographed on several occasions, and all showed complete heart-block. Two of them, in addition, showed indications of a right branch lesion as well, seven showed a left-sided preponderance, and one showed a right-sided preponderance. Seven showed ventricular extra-systoles, and one case showed a very variable condition, at times complete heart-block, at others an obstruction to the right main branch, but with no obstruction to the main bundle. One case showed complete recovery. X ray examination showed typically large horizontal hearts.

After-histories.—Eight of these cases managed to carry on their ordinary light occupations, but had to take periodical rests. One man died suddenly at the house of a friend after a heavy meal. Post-mortem examination revealed the stomach very greatly distended and the heart displaced by pressure. One woman also died suddenly in a tram after a heavy supper; the stomach was found to be distended, the mitral valve stenosed and incompetent. This case had what was usually described as the third sound during life. A second woman died suddenly on the day following her mother's sudden death from heart disease. One woman became pregnant and was sterilised without mishap. One man had a prostatectomy successfully performed. This case subsequently died suddenly.

Summary and Conclusions.

The main points brought out by the above analysis appear to be: 1. The relative infrequency of a rheumatic or syphilitic history. 2. The almost invariable association of the condition with mitral regurgitation. 3. The tending to sudden death on gastric distension or exertion. 4. The occurrence of Stokes-Adams "fits" when the heart-block is complete. 5. The frequency of pain as a symptom. 6. The possibility of the condition being transmitted from mother to child. 7. The ability of some patients to work or even to stand severe operations.

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* The basis of a clinical demonstration delivered at the National Heart Hospital on Feb. 11th, 1920.

CONGENITAL AND HEREDITARY DEFECTS IN RECRUITS:

OBSERVATIONS BASED ON THE MEDICAL EXAMINATION OF 25,500 MEN.

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THE national necessity which has compelled the medical examination of large numbers of men of military age (18–41) has given an opportunity to observe in a short space of time the incidence of some diseases and defects having a relation to an hereditary or embryonic origin. Some of these are common to everyday experience; some are rare and exceptional even to the mature experience of men long in practice. When such rare cases appear in the small fraction of the population herein dealt with, it may not be too much to assume that, taking the population as a whole, these cases may form a class larger than has been supposed.

The analysis which has been here attempted is based on 27,794 examinations, of which 2294 were re-examinations, leaving a total of 25,500 men examined. The period covered is from Jan. 22nd, 1916, to June 15th, 1917. If a similar analysis were extended over all the men examined in the country, some idea would be given as to the range and limits of human variability as ascertained by external examination. No doubt the labour involved would be so great as to render it almost impracticable, but the results from the scientific point of view would justify it.

In making the examination of the foregoing cases none have been included where there has been a distinct history of trauma or acquired disease.

For example, all cases of epilepsy or mental defect where there has been a history of head injury have been excluded. The cases included comprise those idiopathic types which are generally acknowledged to have some more or less definite relation to heredity and those defects which are due to embryonic or intra-uterine causes. The cases have been grouped as follows:—

Central Nervous System.

1. Mental deficiency. This includes all grades from the merely dull and backward to the hopeless idiot with defects of speech and hearing, but it does not include cases of insanity or those with a history of insanity. Total number, 119. Proportion per 1000 examined, 4·7.

2. Epilepsy. All these cases have been confirmed either by medical certificates or by circumstantial evidence confirming the history. Only one case had an attack on the premises. Total number, 94. Proportion per 1000 examined, 3·6.

3. Doubtful epilepsy. History unconfirmed. Total number, 30. Proportion per 1000 examined, 1·2.

4. Deaf and dumb. Total number, 28. Proportion per 1000 examined, 1·1.

Eyeball.—Malformations of shape not apparent to observation are revealed by the cases of high myopia and high hypermetropia which occurred with some frequency. These are nearly always congenital or developmental. It was impossible to distinguish these from the lesser degrees of the same defects which were probably acquired and were very numerous. Conical cornea, total number, 3; congenital cataract, total number, 16. Double congenital coloboma in lower half of iris with eccentric pupil, 1. Captain R. Richards, R.A.M.C., reports "that the structures behind the iris are also involved and that both retinæ present coloboma of large extent. The case is of ophthalmological interest." Congenital coloboma in lower half of iris of right eye with eccentric pupil but with loss of left eye, 1. Double microphthalmus, 1. Congenital ptosis, 3. Colour blindness with family history of the affection, 1.

Pinna.—Small right malformed pinna with imperforate meatus, 1. Small left malformed pinna, meatus normal, 1. Right and left pinnæ pointed in the region of Darwin's tubercle, which was absent, 1.

Skin.—Psoriasis, total number, 60; per 1000, 2·4; ichthyosis, total number, 12; per 1000, 0·5; leucoderma marked, 1.

Goitre.—All cases of exophthalmic goitre excluded, owing to the frequency with which goitre appeared in the small number examined from the S.E. district of Cheshire. This group is divided into two: from Lancashire, 34; per 1000, 1·5; from Cheshire, 16; per 1000, 7·0.

Muscular system.—Absence of sternal portion of pectoralis major, 2 on right side, 2 on left—total number, 4. Congenital wry-neck, 3. Congenital dystrophy of muscles, 1.

Urogenital system.—Undescended testicle, 42; per 1000, 1·7. Extroversion of bladder, 2. Sexual immaturity: Miniature penis, scrotum, and testes with predominance of secondary female characters of feature, voice, and smooth hairless skin, 3. Pseudo-hermaphroditism: External genital organs presenting both male and female characteristics. The meatus opened behind a well-developed penis or clitoris with well-marked labia minoræ and majoræ. Small bodies, probably testes, could be felt in the inguinal canal and the individuals showed predominance of secondary male characters of feature, voice, and coarse hairy skin, 2. Mistaken sex—with complete female characters—genitalia, breasts, voice, and skin, dressed and working as a male from early life, 1.

Mouth and lips.—Cleft palate, 11. Hare-lip, 1.

Lower limbs.—Congenital dislocation of hip, 13; talipes valgus, 4; talipes equino-varus, 19; pes cavus, 17. In noting the last two groups the distinction between the congenital and the acquired varieties has not always been made; only 5 of the 19 cases of talipes equino-varus were noted as congenital. Webbed toes, 3; there were probably more cases of webbed toes which were noticed but not noted. Congenital stump of right leg below knee 4 inches long with three small buds representing toes, 1.

Upper limbs.—Congenital deformity of left scapula: The scapula was higher up and smaller than its fellow on the right. There was also some limitation of shoulder movements, 1. Congenital deformities of hand and forearm, 20. Only 11 of these can be specifically described, the other 9 are noted as congenital deformity of hand, but it is understood that this refers to either absence of one or more digits or to supernumerary digits with abnormal articulations and webbing. The following are the 11 cases: 1. Webbed third and fourth fingers on both hands. 2. Left hand with only thumb and little finger, absence of second, third, and fourth fingers—a condition of claw hand. 3. Absence of right thumb. 4. Supernumerary right thumb. 5. Macrodactyly—abnormally large middle finger, about twice the size of its adjoining fellows. 6. Both hands abnormally large, with family history of the condition. 7. Brachydactyly, with family history of the condition. 8. Congenital stump of left forearm, with two bony digits attached. 9. Congenital stump of left forearm 4 in. long, with five small buds representing digits. 10. Congenital stump of left forearm at the carpo-metacarpal articulation, with minature thumb and a row of four minute portions of nails representing digits. 11. Congenital deformity of right hand and foot. Right hand: Thumb normal in appearance; at base of right forefinger there is a marked constriction. A similar constriction is present round base of proximal phalanx of middle finger, which is much shortened. The ring and little fingers are abortive and fused together. Right foot: Much shortened owing to short metatarsals. The toes are represented by five imperfect diminutive digits.

Miscellaneous.—1. Hæmophilia, 3, with family history of the condition. 2. Albinism with nystagmus, 1. Two brothers and one sister affected, five brothers and one sister unaffected. 3. Blue sclerotics and brittle bones, 1. This person had markedly blue sclerotics and gave history of multiple fractures—left leg three times, right leg once, left arm once, and dislocation of both elbows. No family history in this case. 4. Left cervical rib, 1. 5. Spina bifida, lumbar region, 1. 6. Transposition of viscera, 1. 7. In coccygeal region, at base of coccyx a number of individuals showed a small rounded or oval swelling at upper part of the natal cleft. This swelling felt firm and fleshy, and when the natal cleft was wide, as it was in many of these cases, the appearance was very like that of an abortive tail.

Comments.

It need hardly be said that it would be unwise to generalise from the figures here given to the whole population. The number examined, 25,500, is too small a proportion, and, in addition, selections for the army from the age-group 18–41 had already been made during a period of 18 months previous to the commencement of these examinations. This selection would tend to concentrate the defectives, but even allowing for this the proportion of mentally defectives, epileptics excluding the doubtful cases, and deaf-mutes seems high. Aldren Turner[1] estimates the proportion of epileptics in this country to be about 1 per 1000. Kerr Love[2] estimates proportion of deaf-mutes for England to be 1 in 2043. For mentally defectives there are no statistics available for comparison. The discrepancy between former estimates and the present figures may be explained on the ground that the present system of examinations is bringing to light cases that would otherwise have remained obscure, together with concentration of defectives due to the continuance of the war.

A comparison between the congenital abnormalities of the upper and lower limbs seems worth noting from this study. The digits of the hand present a variety and complexity of abnormal structure not manifested by the digits of the foot, although both present normally a similar homologous structure. The congenital deformities in the lower limb are chiefly confined to the varieties of talipes and the defective formation of a socket for the head of the femur by the ilium, pubis, and ischium—congenital dislocation of hip. In the upper limb the scapula is homologous to the ilium, but in only one case did this present any congenital abnormality. It would seem that variations in the limbs chiefly take place along their line of function—the lower limb as a locomotory instrument, and the upper limb as a grasping instrument.

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[1] Turner: Encyclopædia Medica, vol. iii., p. 314.

[2] Love: Encyclopædia Medica, vol. ii., pp. 421.

I am greatly indebted to my colleagues, Drs. E. E. Bowden, H. Langdale, W. J. Peacocke, and C. Robinson, for help, and to the president of the board, Major G. R. Fitzgerald, R.A.M.C., and also to the late Mr. Warren, the chief clerk, for assisting in a tedious enumeration.

Warrington.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

THREE CASES OF
TRAUMATIC RUPTURE OF THE SPLEEN.

BY C. M. PLUMPTRE, M.R.C.S., L.R.C.P. LOND.,
MAJOR, I.M.S.; SURGICAL SPECIALIST, 61ST I.S.H.

TRAUMATIC rupture of the spleen, unassociated with injury to any other abdominal viscus, is of sufficient interest to justify a brief account of three cases of this nature that occurred within a period of three months at this hospital. Two of the cases recovered satisfactorily after splenectomy; the third died two hours after operation. The patients, though Indians, were not the subjects of any marked chronic splenic enlargement, the organs on removal being about normal size and weighing respectively (1) 5 oz., (2) 7½ oz., (3) 8 oz.

The following are brief notes of the cases:—

CASE 1.—Cleaner, N.B. Railways. Admitted on 21/6/19 at 11 P.M. His history was that he had received a blow with the fist at about 7.30 P.M. the preceding evening. He had been sick and in pain during the day. On admission patient was very collapsed, pulse 130. His lips, tongue, and conjunctivæ were very pale. On palpation no absolute rigidity, but general resistance and pain most marked in left hypochondrium were present. There was abdominal dullness on percussion. Operation under chloroform and ether at 11.30 P.M. The abdomen was opened through the mid-line; the peritoneal cavity was full of blood and a large tear could be felt on the diaphragmatic surface of the spleen. The pedicle was controlled, the organ was freed and brought out of the wound and removed. As much blood as possible was mopped out of the abdomen, and 2 pints of saline with an ounce of ether poured into the peritoneal cavity. The abdominal incision was closed in layers. The patient was very ill for several days and had a sharp attack of bronchitis. Subsequently convalescence was most satisfactory, and when seen some five months later the patient was very fit and had increased considerably in weight.

CASE 2.—Driver, N.M. Machine Gun Company. Admitted 25/8/19 at 10.30 A.M. He said he had been kicked on the left side of his back the same morning about 6.40 by a mule. He complained of abdominal pain and had been sick once. He was not markedly anæmic, pulse 110. The left hypochondrium was rigid; there was dullness, which did not alter on turning the patient over, in the left flank, and general tenderness on abdominal palpation. Operation under chloroform and ether. The abdomen was opened through the left rectus and found to be full of blood. Two tears could be felt extending outwards from the hilum into the substance of the spleen, which was freed, brought out of the wound, and removed. The blood was mopped out of the abdomen and the wound closed. For four or five days there was an evening rise of temperature to 100°F.; convalescence was then uninterrupted, and the patient was evacuated apparently quite fit a month later.

CASE 3.—Driver P., Army Troops Transport. Admitted 10/9/19 at 10 A.M. He said that about 7 A.M. that morning he fell off a loaded A.T. cart which passed over his chest and stomach. Patient was very collapsed, sweating and markedly pallid, with a feeble pulse of 120. He complained of thirst, was restless and anxious. The abdomen was distended, painful on palpation, and did not move on respiration; both flanks were dull. Operation 11 A.M. under spinal anæsthesia. The abdominal cavity was opened through the mid-line, and was full of blood. A tear could be felt extending almost a third of the way through the organ on the diaphragmatic surface of the spleen, which was brought out of the wound and removed. The abdominal cavity was mopped free of blood, hot saline poured in, and the wound closed. Patient gradually got worse, and despite resuscitative measures became unconscious and died about two hours after the operation.

Observations on the Cases.

Case 1 was rather unusual, in that the injury had been sustained 24 hours before admission to hospital; it is possible that this was an instance of subcapsular bleeding with late rupture and intraperitoneal hæmorrhage. At the operation, a tear in the spleen, 2 inches long by 1 inch in depth was found.

All the patients exhibited the signs of severe intra-abdominal hæmorrhage, and operation was undertaken immediately in each case, saline being given during the operation. In two patients a mid-line incision was made; in the third the incision was made through the left rectus. It was found the spleen could be brought out sufficiently through either incision to ligature the pedicle without undue tension. No attempt was made to suture the spleen, the patient's condition and the damage to the organ, which in each case was very considerable, being taken to contra-indicate this line of treatment.

I wish to thank Lieutenant-Colonel M. Mackelvie, I.M.S., Officer Commanding the 61st Indian Stationary Hospital, for permission to report these cases, and Major P. Tarapore, I.M.S., and Lieutenant J. A. Ross, R.A.M.C., who very kindly acted as assistant and anæsthetist at the operations.

A CASE OF
CONGENITAL MALFORMATION OF THE LARGE INTESTINE
IN A NEW-BORN INFANT.

BY H. H. GELLERT, M.B., CH.B. EDIN.,
LATE SENIOR RESIDENT, METROPOLITAN HOSPITAL, E.

THE rarity of these cases justifies the publication of this one.

A full-term male child, born five days previously, was admitted to the wards of the Metropolitan Hospital on Feb. 13th with a slightly distended abdomen and a history of absolute constipation since birth. Delivered as a breech presentation, the child was cyanosed at birth. He appeared to be healthy and took feeds regularly by breast and bottle. Urine had been passed as well as flatus, but no melæna or fæces had been evacuated. No vomiting, restlessness, or evidence of pain noted.

On examination the child, a somewhat poorly developed infant weighing just over 5 lb., presented no evidence of discomfort or distress. Temperature 96·4°F., pulse 142, respirations 36. The abdomen was moderately and uniformly distended, and its appearance suggested distension of the small intestine. No peristaltic movements were visible or palpable, and no tumour was felt through the abdominal wall. Rectal examination at first gave the impression of atresia of lower part of rectum, but on more careful palpation it was obvious that the lumen of the bowel was patent, though very markedly narrowed. There were no evidences of developmental abnormality present elsewhere. Ol. ric. and a glycerine enema were administered without result, except for a small amount of slime. Feeds of milk and barley-water were taken. After observation for several hours no vomiting and no action of the bowels occurred and the abdomen became more distended, and laparotomy was performed.

Operation.—After a preliminary bandaging of limbs a small paramedian incision was made below the umbilicus and the peritoneal cavity was opened. Free gas and clear fluid exuded under pressure. Coils of motionless, congested, distended, and hypertrophied small intestine were brought into view. Small petechiæ were present over the surface of the gut and also areas of lividity. In addition small flakes of lymph and fibrinous serous exudate showed evidence of the onset of diffuse peritonitis. It was only with the utmost difficulty (and by enlarging the original incision) that a small contracted cord, no larger than a thick piece of string, representing the transverse colon, was brought into view. The distended ileum was ultimately traced to the ileo-cæcal junction, and a very much attenuated cæcum identified. Diligent search revealed no trace of any mechanical block by bands, volvulus, intussusception, &c. As the patient was showing evidences of cardiac embarrassment it became necessary to bring up into the parietal wound a loop of ileum close to the ileo-cæcal valve and open it on the surface. A small Paul's tube was inserted with a purse-string suture, and the abdominal wall closed in one layer. The condition of the child improved somewhat overnight. Hyd. cum cret. in half-grain doses was administered by mouth, but no action of the bowels resulted and no flatus was passed. Subcutaneous saline was transfused. The child died the following day within 24 hours of admission.

Post-mortem.—At the autopsy the stomach, duodenum, and coils of small intestine were all very markedly distended and the muscular coats hypertrophied. Ecchymoses and fibrinous deposits were present. Immediately adjacent to the ileo-cæcal valve, the ileum was collapsed, and showed a distinct perforation of the wall in the shape of a small ragged tear. The ileo-cæcal valve was patent. The large intestine was represented by a pale contracted band which would only admit a moderate-sized probe. From the diminutive cæcum downwards the colon was markedly attenuated and poorly developed in a gradual decline, especially marked below the hepatic flexure. A minute appendix was present. The small intestine contained liquid fæcal matter, and the contents of the ascending colon and cæcum consisted solely of bile-stained meconium. A thin plug of inspissated mucus was found blocking the lumen of the gut in the region of the splenic flexure. The large intestine was present in its entirety, and no atresia or occlusion (apart from the plug of mucus) was observed in any part of the colon. No other mechanical cause for obstruction was found. The condition of the large bowel was obviously due to malformation—microcolon—a developmental error in early fœtal life, and did not represent a state of collapse below an obstruction giving rise to mechanical ileus. No other developmental abnormalities were found post mortem.

I have to thank Dr. Edmund Cautley, under whose care the child was admitted, and Mr. Robert A. Ramsay, who operated, for permission to publish this case

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

CLINICAL SECTION.

EXHIBITION OF CLINICAL CASES.

A MEETING of this section of the Royal Society of Medicine was held on April 16th, Sir ANTHONY BOWLBY, the President, being in the chair, when clinical cases were exhibited.

Mr. ARTHUR EVANS showed a case of

Actinomycosis of the Thoracic Wall.

The patient first noticed pain and swelling in his left side and back about ten weeks before admission to hospital. He thought the present swelling was due to having been hit by a pole in the ribs. His previous health had been good. His occupation was an indoor one. There was on the left side a swelling of the lower thoracic margin, involving apparently the seventh, eighth, ninth, and tenth ribs and extending from the middle line to the mid-axillary line. The left thoracic margin, grasped between the fingers, felt three times as thick as that on the right. There was tenderness on pressure over the tumour. X ray examination showed the presence of a shadow in its region. An incision was made through almost its entire thickness, but no inflammatory focus was found. As the case was regarded as one of sarcoma the tumour was excised widely, which necessitated the removal of portions of the eighth, ninth, and tenth ribs, and the muscles of the abdominal wall adjoining. When this mass was removed the exploratory incision which had been made into the tumour substance was deepened, immediately subjacent was found a narrow streak of pus containing yellow granules, suggestive of actinomycosis. The base of the large wound was composed of peritoneum and pleura, both of which were unopened. As a substitute for the abdominal muscles two large silver filigrees were sutured into position between the peritoneum and the skin, covering an area extending from the outer border of the left rectus to the mid-axillary line, and from the rib margin to the level of the iliac crest. About three months after the operation a nodule appeared posterior to the site of the original tumour. This broke down and a sinus formed discharging actinomyces. The patient was put on large doses of potassium iodide, and the swelling gradually disappeared.

In answer to a question by Mr. A. W. SHEEN, Mr. EVANS said that there was no evidence to show how the infection gained entrance. At the operation he was able to shell off the peritoneum and pleura with ease, and there was no sign whatever that any tract had communicated with the tumour.

Mr. EVANS also showed a case of

Acute Osteo-myelitis of a Lumbar Vertebra.

The patient was a boy, aged 16½ years, who had left off work in October, 1919, feeling unwell. He had previously had three boils over the sacral region. Two days later he complained of headache and pain in the lower part of his back and in his legs; he began to have great difficulty in micturition and suffered from "pain in his stomach." There was no history of vomiting or of a sore-throat. When first seen in November he complained of great pain in his lumbar and sacral regions and in both legs. For ten days previously he had been running a temperature which had daily risen to 100°, 101°, or 102°. The cranial nerves were normal. Abdominal reflexes were present, the knee-jerks were absent, Achilles jerk was present, and the plantar reflexes gave an extensor response. He could flex and extend the right knee and ankle, but the movements were all feeble; he could flex but not extend the left knee and ankle. Both limbs were wasted, and especially the left quadriceps extensor cruris muscle. There was no sensory loss. There was evident tenderness over the upper part of the sacrum, more on the right than on the left side, and great tenderness on pressure over both erectores spinæ. A tentative diagnosis of acute anterior poliomyelitis involving the third and fourth lumbar segments was made. As the condition showed no improvement an operation was performed. A median incision was made over the lumbar spines and the muscles retracted. The third lumbar spine was found to be necrosed and loose, and from this site an abscess extended into the right and left erectores spinæ. On exposing the vertebral canal it was found to contain thick, yellow, odourless pus.

The canal was opened down to the sacrum Pressure over the latter caused pus to well up out of the superior aperture of the sacral canal, so this also was opened up along its entire length The whole of the exposed part of the spinal canal was filled with necrotic tissue covering over the dura and the cauda equina Bismuth iodoform paste was gently rubbed over it and the wound closed, save where it gave exit to a gauze drain For a few days after the operation there was incontinence of fæces Recovery was rapid, and in two months the patient could walk perfectly The cerebro spinal fluid obtained by lumbar puncture showed an excess of polymorphonuclear leucocytes, no organisms were seen

Mr **EVANS** also showed a case of

Cystic Adenoma of the Bile ducts.

It was that of a woman on whom he had operated in December, 1919 The patient was admitted to hospital in November She was emaciated, looked ill, was slightly jaundiced, and complained of constant pain in the upper part of the abdomen In the epigastrium and continuous with the edge of the liver was a tense cystic tumour reaching down almost to the umbilicus On opening the abdomen free fluid of a myxomatous nature was found in the peritoneal cavity The tumour proved to be a large cyst attached to the under surface of the liver On opening this yellowish viscid fluid escaped The examining finger felt masses of what were thought to be daughter cysts adherent to the inner wall They were detached with difficulty The greater portion of the cyst wall was removed, and a large drainage tube inserted Microscopical examination proved the tumour to be a multilocular cystic adenoma of the bile ducts

Mr **PHILIP TURNER** showed a case of

Fracture of the Left Humerus Non union (Pseudarthrosis) after 34 Years.

The patient, a man, aged 53 years, attended hospital about three weeks ago for partial rupture of the right biceps In the course of examination it was found that he had an ununited fracture of the left humerus, the result of an injury 34 years before, a report of which stated that he had been admitted to hospital in 1886 for injuries received as the result of a "stack of iron" falling on him There was a compound fracture of the right tibia and fibula, a fracture of the shaft of the left humerus about the junction of the middle and lower thirds, and a wound of the right hand with dorsal dislocation of all the first phalanges of the fingers The fracture of the humerus was treated at first by an anterior angular splint with three small splints, later by a plaster of Paris splint, and then, as this was not satisfactory, by an internal angular splint and small splints Before discharge it was noted in the old hospital reports "Position better, much firmer union" Though at present there was a very marked deformity, the appearance superficially resembling a Charcot's disease of the elbow joint, the functional result was remarkably good The elbow joint was not absolutely ankylosed, but flexion and extension of the forearm on the arm took place in the false joint, where, in addition to the normal movements, there were also lateral mobility and a certain amount of hyper extension The muscles of the forearm and arm were well developed and there was a powerful grip All the normal movements of the arm and forearm could be carried out with the exception that, owing to lack of rigidity in the false joint, the arm could not be raised above the level of the head The patient said that the arm was "strong, but not quite so strong as the other" He had continued since the accident in his original employment as a labourer at an ironworks, the work was very heavy and included lifting heavy girders There was no pain in the joint and the patient complained of no disability The case was shown on account of the very long interval since the original injury, and to demonstrate that a strong, useful and painless arm might result with an ununited fracture of the humerus

Tuberculous Caries of Mid dorsal Spine

Mr **A W. SHEEN** showed a girl aged 22, who had been admitted to hospital with rather acute tuberculous caries of the mid dorsal spine There were pain and tenderness and the patient had become very thin. A tibial bone graft was inserted in 1914 She remained in hospital for three months after the operation and rested at home for six months, had a holiday, and then resumed work. She could get about satisfactorily and do her work. According to a recent X ray report there was considerable bowing, but no caries, while the graft showed like a long curved rod and was rounded off

The **PRESIDENT** remarked on the slight degree of deformity which was present, and which was not of the angular type

HUNTERIAN SOCIETY.

TREATMENT OF ANTE NATAL AND POST NATAL SYPHILIS.

A MEETING of this society was held on April 14th at the Venereal Diseases Centre for Pregnant Women, 18, Thavies Inn, Holborn Circus, E C , at the invitation of Mr. John Adams, Dr. W. **LANGDON BROWN**, the President, in the chair The society had already marked its appreciation of the pioneer work done by Mr Adams at this centre by awarding him its medal, which is awarded annually with the object of encouraging individual effort among general practitioners in advancing the science and art of medicine

Mr **ADAMS** said that the centre was established in 1917 for the treatment of syphilitic pregnant women and their babies, and the results might be judged by reference to the following table —

Year	Syphilitic mothers	Babies with positive W R	Babies with negative W R	Stillborn
1917-18	23	17*	6	5
1918-19	30	8†	21	1

* 3 died—1 aged 6 hours 1 aged 14 days, 1 aged 36 days
† 1 died aged 2 months

The cases undergoing treatment at the centre were first shown—nine mothers with babies of various ages up to 2½ years being demonstrated, and their healthy appearance gave some indication of the success of the treatment adopted Mr Adams said that the results obtained since the centre was first opened had been sufficiently striking to warrant certain definite conclusions[1] being drawn from them A syphilitic pregnant woman could be treated safely and effectively with arsenical preparations up to the day of her confinement Such a woman, if actively treated, might give birth to a child with a negative Wassermann, although her own blood might still be positive. The child throve if the mother had been treated. If, however, the child was syphilitic when born it could be treated immediately after birth with safety and considerable benefit These beneficial results were obtained by intramuscular injections of galyl dissolved in glucose solution, but were considerably enhanced by simultaneous intramuscular injections of mercury, combined with oral administration of hyd cum cret Further, the child was found to respond much more readily than the mother to treatment if one judged by the blood test The child throve, put on weight, and became quite normal The fact that no syphilitic manifestations had been observed in any of the babies born during the past year and actively treated at this centre illustrated very forcibly the effects of treatment.

Demonstration of Methods of Treatment

The demonstration of the methods of treatment employed at the centre took place in the theatre Mr Adams showed syphilitic infants undergoing treatment by intramuscular injections of galyl in glucose solution and mercury (grey oil). The initial dose of galyl used is 1 5 cgm , and is given on the day of birth followed by a similar dose after a week. From then onwards the injections are given fortnightly and the results of treatment controlled by the application of the Wassermann test at intervals In Mr Adams's view it is important to give the galyl in glucose solutions, and the doses gradually increase from the initial dose of 1 5 cgm. to 5 cgm. The combined mercurial treatment commences after the first week and is given in the form of intra muscular injections of grey oil into the buttock For this purpose a special syringe has been devised, provided with 15 divisions, each division corresponding to one fortieth of a cubic centimetre When 40 per cent grey oil is used, each division then contains 1 cgm of mercury. The grey oil used for the babies is 20 per cent., and the amount given is raised gradually from ¼ gr. of mercury to ½ gr. It is conveniently injected into one buttock, and the galyl injected into the other, both injections being administered fortnightly. The maternal injections are given weekly. At the demonstration, the blood for the Wassermann test was taken with ease and rapidity from the heel of the infants. The foot had been placed in hot water for a few minutes, and then dried, and held in the left hand, while three stabs with a needle quite close together were made into the heel. Blood flowed freely, and the flow was assisted by gentle squeezing. The actual treatment of the syphilitic mother was also shown.

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[1] See also THE LANCET 1918 ii 770

SHEFFIELD MEDICO-CHIRURGICAL SOCIETY.

AT a meeting of this society on April 1st a discussion was held on

Anæsthetics.

Mr. **HERBERT HALLAM**, in opening the discussion, after comparing the merits of ether and chloroform, said that the only two safeguards against overdose were a knowledge of the physiological action of chloroform and the maintenance of a free airway. He then enunciated his theory of the cause of chloroform overdose as follows. Air containing chloroform enters the lung alveoli and the vapour is absorbed by the blood, such absorption depending on (1) the percentage of chloroform in the inhaled air; (2) the air pressure in the alveoli. Thus a to-and-fro current of air containing chloroform goes on in and out of the lung alveoli, and as more vapour is absorbed the characteristic signs of anæsthesia develop. So far only the tidal air in the alveoli is involved. If this exchange occurs with freedom all is well, but if any interference with respiration occurs through obstruction the situation is altered to one of extreme danger. The remedy for obstruction is expiratory effort, and the combination of effort and obstruction raises the alveolar pressure, with involvement of the residual air and rapid absorption of chloroform leading to an overdose. The patient is poisoned, not from the chloroform on the mask, but from that in his alveoli. Illustrations in support of this theory were: (1) In the operation for tonsils and adenoids a patient lightly under may through obstruction from the tongue or the manipulations of the surgeon become suddenly poisoned; (2) the absence of poisoning where intratracheal chloroform by means of a catheter is employed with its free airway; (3) the rapid recovery from poisoning when, by removing obstruction and performing artificial respiration, intra-alveolar pressure is removed. Lastly, he referred to the question of idiosyncrasy to chloroform and the value of suggestion before operation.

Mr. W. T. **DAKIN MART** then demonstrated Boyle's Gas and Oxygen Apparatus. He pointed out that at the outset it was essential to see that all adjustments were in order and that sufficient gas and oxygen was at hand, and that the reserve cylinders were ready for immediate switching on; to turn the taps on gradually and see that the lamps attached to the neck of the cylinder were burning in order to prevent freezing; to make sure that the face-piece was firmly attached to the patient's face in order to give the anæsthetist absolute control over the mixture. So far as circumstances allowed the patient should be comfortably placed with the head slightly raised. The anæsthetic should be given in the theatre and absolute quiet was essential. No holding of the patient was desirable or necessary. He advocated preliminary medication with morphia ¼ gr. and atropine 1/150 gr. 20 minutes before the start of the operation. In abdominal operations the abdominal wall should be anæsthetised, after the patient is under, by means of ½ per cent. novocaine and ¼ per cent. potassium sulphate given independently and injected layer by layer. This prevented pain after coming round, and so enabled the patient to breathe more deeply and clear the lungs more quickly. It was desirable to start the induction with a pressure equal to one hole of oxygen and three of nitrous oxide. The patient first breathes air until the bag is three-quarters full of the above mixture, when the valves are turned on and he breathes from the bag and into the air. Then re-breathing in and out of the bag is commenced. The colour of the ears should be watched, and if they become dusky more oxygen should be given. The signs of complete anæsthesia were regular quiet breathing, sometimes difficult to obtain when there was much re-breathing, pupils small and active, eyes moving, and a normal pink colour. The signs of deep anæsthesia were snoring, which was difficult to avoid with the re-breathing mechanism, dusky tinge, jactitation, rolling up of the eyeballs, and dilatation of the pupils. These signs indicated that more oxygen should be given. Suitable cases for this method were amputations, chest cases, cases suffering from severe shock, and pneumonia and bronchitis requiring operation. Nose and throat cases were difficult to anæsthetise by this method. Advantages over other methods were: no fall of blood pressure, very little vomiting, rapid recovery from the anæsthetic, and often an improved general condition of the patient after the operation.

Mr. R. V. **FAVELL** demonstrated Marshall's apparatus for gas and oxygen, and many other members took part in the discussion, including Dr. T. Robertson, Dr. R. J. Hillier, Dr. W. Sneddon, Dr. N. Milner, Dr. J. B. H. Holroyd, Dr. T. B. Stedman, and the President.

BRISTOL MEDICO-CHIRURGICAL SOCIETY.

Exhibition of Cases and Specimens.

A CLINICAL meeting of this society was held at the University of Bristol on April 14th.—Dr. D. A. **ALEXANDER** showed a case of Myxœdema; also a case of Tetany in a boy of 18, with defective physical development and a rather full thyroid gland.—Dr. J. M. **FORTESCUE-BRICKDALE** showed a boy of 19 with very defective development, probably due to pancreatic insufficiency.—Dr. J. R. **CHARLES** showed a case of Myelogenous Leukæmia, with symptoms indicative of a lesion of the labyrinth on both sides, coming on simultaneously and acutely.—Mr. **HUBERT CHITTY** showed a child with an Inclusion Dermoid of the Scalp; and another patient with a Lymphangioma of the Cheek, under treatment by electrolysis through the mucous membrane.—Dr. **RICHARD CLARKE** demonstrated a specimen of Pituitary Tumour; the chief symptoms had been acromegaly, optic neuritis, and diminished glucose tolerance.—Mr. J. P. I. **HARTY** and Dr. F. J. A. **MAYES** showed a case of Epithelioma of Tonsil, Palate, &c., undergoing treatment by diathermy and injections of copper alanin, with promising results.—Mr. **CLIFFORD MOORE** showed a boy with Schlatter's Disease (bilateral).—Dr. J. A. **NIXON** showed a child with Morbus Cordis and Congenital Syphilis; a man with Steatorrhœa following Gastro-enterostomy (possibly due to implication of the pancreas in the base of a gastric ulcer); and a youth convalescent from an illness resembling to some extent Toxic Polyneuritis and also Encephalitis Lethargica.—Dr. **GEORGE PARKER** brought a number of children with Infantile Diplegia, to whom thyroid extract was being given with benefit; also cases illustrating Paralysis of the Serratus Magnus and of the Trapezius; and a man with a lesion of the external cutaneous and genito-crural nerves associated with an operation for inguinal hernia.—Mr. A. **RENDLE SHORT** showed two patients doing well after Albee's operation for tuberculosis of the spine; and a specimen of Malignant Papilloma of the Renal Pelvis removed by Operation.—Dr. J. O. **SYMES** showed two patients exhibiting an Indurative Erythema of the Skin over the calves of the legs.—Dr. P. **WATSON-WILLIAMS** showed a patient from whom he had removed a large Polypus of the Sphenoidal Sinus, together with the tumour.—Dr. **CECIL WILLIAMS** showed a case of Œdema of both Eyelids in a boy whose mother had been similarly affected after eating oranges; there was reason to regard the boy's lesion as the outcome of a similar "toxic idiopathy."—Mr. C. **FERRIER WALTERS** showed two patients with Exophthalmic Goitre who had been relieved by the Dunhill operation.—Dr. W. **KENNETH WILLS** showed patients cured, by a single dose of X rays, of (1) Rodent Ulcer of three years' standing, (2) Lupus Erythematosus Discoides; also a man with a Syphilitic Tumour of the Maxilla undergoing successful treatment with novarsenobenzol; and a severe and intractable case of Dermatitis Herpetiformis.—Mr. **DUNCAN WOOD** showed four ex-Service patients in whom persistent traumatic bony defects had been closed by grafts of living tissue-muscle in three cases and bone in one.—Mr. A. J. M. **WRIGHT** showed a man with Cicatricial Stenosis of the Larynx due to a gunshot wound, in whom laryngostomy had been performed, and would be followed later by a plastic operation for closure of a cartilaginous graft.

A CONJOINT meeting of the Obstetrical and Gynæcological Section of the Royal Society of Medicine with the North of England and Midland Obstetrical and Gynæcological Societies will be held in London at the rooms of the Royal Society of Medicine, 1, Wimpole-street, W., on Thursday, May 6th. The discussion at the morning session will be on the Treatment of Ante-partum Hæmorrhage, opened by Dr. Hastings Tweedy at 10.30 A.M. At the afternoon session a discussion on Rupture of the Cæsarean Section Scar in Subsequent Pregnancy or Labour will be opened by Dr. Eardley Holland, and followed by statistics from various hospitals throughout the country. A dinner will be held at 7.30 P.M., at the Great Central Hotel, Mr. J. D. Malcolm, President of the Section, in the chair.

Reviews and Notices of Books.

A TEXT BOOK OF GYNÆCOLOGICAL SURGERY

Second edition By COMYNS BERKELEY, M A , M C , M D Cantab , F R C P , Gynæcological and Obstetric Surgeon to the Middlesex Hospital, &c , and VICTOR BONNEY, M S , M D , B Sc Lond , F R C S , M R C P Lond , Assistant Gynæcological and Obstetric Surgeon to the Middlesex Hospital, &c London Cassell and Co 1920 With 489 figures in the text and 16 colour plates Pp 829 42*s*

THE first edition of this work appeared in 1911, and in consequence of the time that has elapsed numerous alterations have been necessary. A considerable amount of space is devoted to the authors views on the ætiology of prolapse of the uterus and vagina Not many gynæcologists will be found to agree with their suggestion that the broad ligaments play an important part in the suspension of the uterus in its normal anteverted position They describe an upper, a middle, and a lower segment of the suspensory apparatus, and from this deduce that there are seven clinical varieties of displacement of the genital canal, the operative treatment of each of which they discuss in detail We are glad to see that they strongly deprecate the operation of hysterectomy for any of these conditions , they point out the true use of shortening of the round ligaments, and do not recommend this operation for procidentia uteri

In the section on the preparation of the abdomen before operation they advocate the use of crystal violet and brilliant green, and bring forward evidence to show that this antiseptic is more certain than iodine as ordinarily used We cannot agree with the authors that abdominal drainage is better than vaginal, and we believe that the discharge is freer and continues longer from the upper opening because the drainage is less efficient and the track more extensive The description of the operations necessary for the removal of cervical myomata is good, and should prove helpful to the young operator The section on extended abdominal hysterectomy is very good and full , it is a pity that the authors have not brought their results up to date, as their experience is a large one, and a good deal of doubt is arising in the minds of many gynæcologists as to the ultimate value of this operation There are those who believe that the time is coming when it will be displaced altogether by the use of radium

The operation of myomectomy is one that appeals very much to the authors We are not sure that their arguments are convincing, and fancy that most surgeons will still regard myomectomy as an incomplete operation only suitable for a limited number of cases, and that when the uterus is the seat of multiple fibroids it is better removed Section of the uterus is suggested too often, in our opinion, in this book We regard utriculoplasty as an unnecessary and dangerous operation which will not survive, and we cannot agree that hysterotomy is ever indicated or proper as a preliminary to scraping the endometrium or for the purpose of removing a mucous polypus The recommendation of Cæsarean section for the great majority of cases of placenta prævia would, if carried out in any number of cases, most certainly increase the death rate to the mothers without increasing the number of children which would survive (It must be remembered that the risk to the child is due to a number of factors, that the results of Cæsarean section in cases of premature children are most discouraging, and only some 30 per cent of all cases of placenta prævia go to full term The recommendation to evacuate the uterus in cases of tuberculosis and then to sterilise the patient by tying the tubes is opposed to the most recent observations on this subject, which show that the safety of the patient is best assured when the uterus is removed intact by hysterectomy and not emptied first

There is much of extreme interest in this book, the operations are clearly described, and the diagrams are very good The positions taken up are not, in our opinion, as we have indicated, always unassailable, but the authors' views are founded on great practical experience The book will be chiefly useful to the expert who is in a position to discount the partiality for obstetric surgery as opposed to obstetric medicine The coloured illustrations are well reproduced and the index is a good one

MEDIÆVAL MEDICINE

By JAMES J WALSH M D London A and C Black, Ltd 1920 Pp 216 7*s* 6*d*

Dr Walsh s books on mediæval medicine are always interesting, but when we read them we are reminded of a remark by a character in Conan Doyle's "Rodney Stone ' concerning the relative merits of pugilists of different nationalities 'When you get a good Irishman you can t better 'em, but they're dreadful asty " For Dr Walsh, though a learned man and an enthusiast in mediæval medicine is prone to make unfounded statements We were impelled to point out this trait when we reviewed his work on the "Thirteenth Century, [1] and the same hastiness is obvious in the book now before us Quite early in the book (p 7) we find the following statement —

> Among them are particularly to be noted certain members of an Arabian family with the title Bachtishua a name which is derived from the Arabic words *Bocht Jesu*—that is servant of Jesus—who having studied among the Greek Christians in Asia Minor were called to the court of Haroun al Rashid and introduced Greek medicine to the Mohammedans

Now the Bachtishuas were not Arabs, but Syrians and they did not study among Greek Christians in Asia Minor, but among Nestorian Christians at Gondisapor, in Persia, although it is true that their medicine was Greek On p 12 Dr Walsh refers to the commonly received opinion that Aristotle dominated mediæval thought with the implication that this opinion is wrong On p 13 he mentions that in another work he had given quotations from Albertus Magnus and Roger Bacon to prove that mediæval scientists did not go by authority but by experiment and observation , and finally, on p 16, he refers to the fact (that Roger Bacon wanted the Pope to forbid the study of Aristotle And why ? Because, to quote Dr Walsh's own words—

> His works were leading men astray from the true study of science—his authority being looked upon as so great that men did not think for themselves but accepted his assertions

No one denies the greatness of Aristotle's intellect, but the obsession of his authority undoubtedly did do harm to the study of natural philosophy For instance, until Galileo showed that Aristotle was wrong everyone believed that if a 10 lb weight and a 1 lb weight (supposing them to be the same shape) were dropped from a height, the 10 lb weight would strike the earth first, because Aristotle had said that it would and even when Galileo made his well known experiment from the Leaning Tower of Pisa, and showed that the two weights struck the ground simultaneously, many people still maintained that Aristotle was right and that Galileo must have made a mistake

The most blatant of Dr Walsh s hasty statements is the following (p 174) He is talking about the number of hospitals which were founded in Europe at the instance of Innocent III , and undoubtedly there were many But in his zeal for his favourite century and Pope he says —

> The traditions with regard to France are quite as complete as those that concern Germany and the great hospitals of London—St Thomas s St Bartholomew s which had been a priory with a house for the care of the poor but was now turned into a hospital Bethlehem afterward Bedlam Bridewell and Christ s Hospital the first of which afterwards became a prison while Christ s Hospital though retaining its name became a school The Five Royal Hospitals as they were called were either founded or received a great stimulus and thorough reorganization during the thirteenth century

Again, on p 200 Dr Walsh says —

> Bedlam in England which had been the old Royal Bethlehem Hospital for the care of all forms of illness came to be just before the end of the thirteenth century exclusively for the care of the insane

Now, let us see the facts St Thomas s Hospital was certainly founded in 1228 by Peter de Rupibus So far Dr. Walsh is correct. St. Bartholomew's Hospital was founded in 1123, together with a priory; the hospital came first, the priory second. There was no turning into a hospital in the thirteenth century; neither is there any evidence of great stimulation or thorough organisation during that century. Bethlehem Hospital —i.e., the Hospital of St. Mary of Bethlehem without Bishopsgate—was founded as a priory in 1247, and is not called "hospital" before 1329, while the earliest record of lunatics being cared for there is 1377. The Royal Commission of 1403 mentions six lunatics as being in the hospital under restraint. This Commission, we expect, is that to which Dr. Walsh refers on p. 188 when he says:—

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[1] THE LANCET, MAY 9th 1908

> "There is definite evidence of Bethlehem in London, afterwards known as Bedlam, containing lunatics during the thirteenth century, for there is the report of a Royal Commission in the next century stating that there were six lunatics there who were under duress."

But he seems to consider that the thirteenth century includes all years beginning with the number 13—or in the case of Bridewell extending to years beginning 15—for Bridewell did not exist until 1522, when it was built in the lordly Tudor way by Henry VIII. for the reception of the Emperor Charles V. Edward VI. gave it to the city on the appeal of Ridley, Bishop of London, as a workhouse for the poor and a house of correction for "the strumpet and idle person." Christ's Hospital did not "retain its name" on becoming a school, but was given it then—i.e., in 1555—the school being housed in what was left of the old Grey Friars Monastery, which was despoiled by Henry VIII. The monastery had been founded in the thirteenth century, but the foundation had nothing to do with the school.

On p. 207 we find another hasty statement; Dr. Walsh quotes a decree of the Emperor Frederick the Second as to the practice of medicine in the Kingdom of Sicily, which states that "no one be permitted to take up the study of medical science without beforehand having devoted at least three years to the study of logic." Dr. Walsh then says in a footnote—

> "Under logic at this time was included the study of practically all the subjects that are now included under the term the seven liberal arts."

We should much like to know his authority for this statement, especially as "this time" is 1231.

As for the rest of the book, there are some interesting illustrations and pleasant chat about Salerno and some of the mediæval surgeons, such as Lanfranc and Mondeville, but we cannot regard the work as a serious contribution to the study of mediæval medical history.

TUBERCULOSIS AND PUBLIC HEALTH.

By H. HYSLOP THOMSON, M.D., D.P.H. London: Longmans, Green, and Co. 1920. Pp. 104. 5s.

Dr. Hyslop Thomson is a bold author, who has [illegible] to provide a short and concise study of [illegible] in relation to public health of interest to medical and non-medical readers. The book is [illegible]ly short and up to a certain point concise. It is full of information which will, no doubt, in the author's words, "assist in removing some of the popular misconceptions which exist with regard to various aspects of this disease." To the medical profession in general, and to the tuberculosis specialist in particular, this book will seem sketchy and incomplete, though here and there the author gives first-hand information of real value. Approaching the subject as he does from the point of view of the medical officer of health, his survey is necessarily wider than that of the tuberculosis specialist who is apt to study the disease as such, rather than the complex fundamental factors of which tuberculosis is a late by-product. Referring to the problem of housing, the author asks why, if it is possible to build houses calculated to maintain the health of the individual with arrested tuberculosis, such houses are not erected on an extensive scale so as to prevent the development and spread of the disease in the healthy population? We repeat this question.

The author does not consider tuberculosis as a highly infectious disease, and he maintains that if certain precautions are taken, the risk of infection from contact with open cases of tuberculosis becomes very slight indeed. This belief of his may be contrasted with his statement that the "segregation in suitable institutions of advanced cases of open pulmonary and non-pulmonary tuberculosis is a measure which has far too long been delayed, and is the one which should constitute the foundation of every scheme of treatment."

RULES FOR RECOVERY FROM TUBERCULOSIS.

Third edition, thoroughly revised. By LAWRASON BROWN, M.D. Philadelphia and New York: Lea and Febiger. 1919. Pp. 192. 15s.

IT is given to few authors to write a book for the lay public so full of important matter, well digested, that medical practitioners and even specialists in tuberculosis may read it with great profit to themselves. In the present edition some details have been added as to the values of foodstuffs, and a liquid diet has been outlined with special reference to patients with failing appetite. Many other changes have been made here and there to keep the book abreast of the times. But these changes concern details rather than principles, and the absence of marked changes in the present edition is a tacit tribute to the soundness of the teachings of the previous edition. As the author generously admits, much of this book represents the expressions, similes, ideas, and teachings of the pioneer in the art of imparting advice to tuberculous patients—the late Dr. Trudeau.

In fact this book represents the life experience of a patient who turned disaster into victory, as well as the views of one of America's greatest living authorities on tuberculosis. The author is cheery and optimistic throughout, but he is also careful to convince the reader that tuberculosis takes years to cure. In this connexion he points out that 38 per cent. of all the patients treated at the Trudeau Sanatorium have died, although in many of these cases death was not inevitable; had but the patients practised common-sense they would still have been alive. With regard to alcohol the author accuses private sanatoriums in Europe of prescribing alcohol more freely than similar institutions elsewhere. He has nothing good to say of alcohol, and he notes that since the death of Dr. Austin Flint, no great student of tuberculosis in America has advocated its use. Many a sanatorium physician will find parallels to the case of the conscientious but unintelligent patient who, being told to walk only 10 minutes a day, saved up his exercise for a week and then took a 60-minute walk. The recent violent swing of the pendulum against tuberculin is not reflected in the author's estimate of this remedy. He does not claim to understand its action fully, but he notes that it achieves remarkable results in a few cases. Another small group of cases cannot tolerate it, but the vast majority take it well, although they experience, apparently, little benefit from its use. The author's choice of text wherewith to head each chapter is usually apt, but when he heads his chapter on the care of the mouth with: "Out of thine own mouth will I judge thee," his exercise of the poetic licence seems a little free.

SANITATION AND HEALTH IN INDIA.

A MANUAL OF CONSERVANCY. By JAHAR LAL DAS, L.M.S. Cal. Univ. London, India, Winnipeg, and Sydney: Butterworth and Co. 1919. Pp. 190. Rs. 5.10.

PERSONAL HYGIENE. By M. R. SAMEY, M.D., D.P.H., M.O.H. Same Publishers. 1920. Pp. 96. Rs. 3.

BOTH these books are written with special reference to India and with the praiseworthy objects of promoting respectively the sanitation of the country and the hygiene of the person. Mr. Jahar Lal Das, who is health officer to the district board of Burdwan, deals with the removal and disposal of refuse of all descriptions, the management of cattle employed on conservancy work, and the prevention of disease among them. Illustrations of the various kinds of apparatus necessary for carrying out the work are used freely to elucidate the text, and an appendix sets out Indian local sanitary laws. There is also a chapter on ankylostomiasis from the point of view of its intimate relation with the pollution of the soil. Professor Charles A Bentley, the Sanitary Commissioner for Bengal, who writes an introduction to the book, points out that the sanitary reformer in India is often discouraged by the ignorance and apathy of the population and by the defective sanitary organisation This little manual, while helping the sanitary inspector, should also assist in educating the more intelligent classes with regard to some of those things on which the health of the *community depends*

Dr. Samey's book keeps in mind the social, economic, and religious conditions which to some extent tend to modify the rules of health suitable to an English-*speaking community, though, generally speaking,* the laws which govern healthy living are the same for all peoples. Foods may differ, but the need for fresh air and cleanliness is everywhere the same. The chapter on Regulating the Passions is somewhat novel for a book of this kind, though quite relevant, here it is pointed out that emotion will arrest, alter, or modify the various organic secretions, the only guarantee for a long life of health and happiness being a constantly cherished even, cheerful, and hopeful spirit Dr. Samey has compiled a useful little manual

MARINE HYGIENE AND SANITATION

A Manual for Ships' Surgeons and Port Health *Officers By* GILBERT E BROOKE, *M A Cantab*, L R C P Edin, D P.H, F R G S. London Baillière, Tindall, and Cox. 1920 With 4 plates and 27 figures in the text Pp x + 409 15*s*. net

THIS book breaks new ground Others have told the ship's surgeon what to do on board his ship and have mentioned his relations with *the* sanitary authorities of the ports he visits, but this book tells him what the sanitary authorities want, why they want it, how he can help them most effectively, what returns he should have ready for them, and how therefore he can most quickly and certainly secure *for* his ship the shortest period of the expensive and unpopular delay "at quarantine" The ship's surgeon who knows this book and acts up to its advice will earn golden opinions *from* his captain, and may even get a bonus from his company if its directors are wise The ship's surgeon is here taught to be methodical in the preparation of such information as is required by the visiting medical officer

The book is well written and well illustrated, though there might have been a plate of stegomyia and other mosquitoes Its accounts of the "origines" of naval hygiene are interesting always; but has the author ever heard of Lind, who is unmentioned in relation to scurvy, and is he the "Lynn" of p 82, who invented the *distillation of* water *on board* ship? The author, who is port health officer at Singapore, has also a good book on tropical disease to his credit. He has visited and made sanitary examinations of many ships, and from his experience easily convinces us *of* the loss British ships suffer both in hygiene and comfort for want of a sanitarian *to give approval* to their design. It is only when the ship is built and in service that a sanitary inspection is held, and the defects then found are often so bewildering that they cannot all be put right The building of standard ships by Government during the war *raised* the level of crew accommodation, the unions also are getting interested and taking action, and though the Ministry of Health has not yet taken a hand in the matter the hygiene of crew spaces is improving. Dr. Brooke's form on which to enter up the sanitary survey of each ship is well thought out. It is satisfactory to find that he constantly quotes with approval the Admiralty Transport Regulations, under which so many soldiers have been taken about the world in this war. As regards beri beri, Dr. Brooke, living in the midst of *beri beri and polished rice*, is *of opinion* that beri beri is due to a micro-organism, present in hot and moist air, finding in polished rice its favourite soil, with an antagonist in the pericarp *of* the rice grain, an opinion heretical just now, but yet with reasons behind it, as every reader will see

The author's first aim is to prevent cases of dangerous disease from eluding his observation, secondly, in every way to avoid unnecessary detention of ships which would hamper trade The modern practice, for which he pleads, is to disinfect a ship at the infected port of departure, that it may be unnecessary to *do* so at the port of arrival Dr Brooke *foreshadows* a time when appointments as port health officers will by statute be given only to men who have served at sea, have a thorough knowledge of tropical diseases, and have specialised in port work

THE LOCAL WAR PENSIONS COMMITTEES' HANDBOOK.

THIS handbook, which consolidates the circulars and instructions issued by the Ministry of Pensions, *other than* those concerning the functions of the Special Grants Committee, has now been placed on sale (price 2*s*) by H M Stationery Office. Arranged in five parts, corresponding with the main divisions of the work of the local committees, it replaces the Instructions for the Assessment of Alternative Pensions, 1917, Instructions and Notes on the Treatment and Training of Disabled Men, 1917, Instructions on the Treatment of Disabled Men, 1918, and Ministry of Pensions Circulars issued *prior to Jan. 1st, 1920 The handbook itself* affords a comprehensive and detailed summary of information which will be valuable to all interested in the administration of pensions and the after care of the disabled, while among the Appendices will be found the complete text of the Royal Warrant of Dec 6th, 1919, under which soldiers' pensions are awarded

JOURNALS.

Tubercle A Monthly Journal Devoted to All Aspects of Tuberculosis. Vol. I, No. 7 April, 1920—The piece de résistance in the April number is an article by Professor C. Saugman on Extrapleural Thoracoplasty, in which he traces in *considerable detail* its history, technique, and results. The indications are practically those for artificial pneumothorax, and in every case this should be tried first. The operation should also give place to Jacobœus's cauterisation of adhesions or to local plastic methods or excision after removal of small pieces of rib, when these milder procedures are possible. Thoracoplasty is recommended in chronic fibrosis, especially with basal cavitation, apical cavities being more difficult to compress and sometimes requiring removal of the upper ribs in front besides the posterior resection. Based on Friedrich's *operation* (1907), the method now advocated by Professor Saugman has been so mitigated as to be relatively safe *Local* anæsthesia is used, except when intolerance to novocaine suprarenin has *been found at* the attempted artificial pneumothorax, and the operation *is divided into* two stages separated by an interval *of a few* weeks *At* the first stage ribs 11 to 5 are attacked, and at the second stage ribs 4 to 1. It is important to remove part, if only a small part, of the first rib. The article is well illustrated and is *documented with a synopsis of the 40 cases treated* from 1916 to 1919 Of ultimate results it is yet early to speak, but the fact that 13 patients are already at work speaks well for the future treatment of some desperate cases An *abstract of an article* by Dr. P. Bull, *of* Christiania, gives his experiences of practically the same operation, and he reckons on getting a "*curative* result" in about one third of the cases—A series of abstracts on tuberculous adenitis raises the difficult question whether this affection confers any immunity to pulmonary tuberculosis, but the answer remains doubtful Dr. W. R. Abbott, of Springfield, Ill., lays down useful guiding principles *for* the treatment of cervical adenitis First, correct any error in the area from which lymph drains to the affected glands—e g., teeth, tonsils, ears. Next, operate early if enlargement, softening, or tenderness of the glands is present, but do not operate when glands have broken down and the disease has extended deeply. In some of these cases aspiration with injection of cinnamon and benzoin is recommended. Thirdly, the author is strongly persuaded of the value of tuberculin above all other remedies, and the drug is found to be more efficacious when injected in the area from which lymph drains to the affected glands.—The relation of influenza to tuberculosis is the subject of a critical review which draws attention to recent doubts whether influenza predisposes to tuberculosis. There is a useful bibliography.

Giornale di Clinica Medica.—This new monthly periodical is published in Bologna under the editorship of Professor Umberto Gabbi, who founded it and issued the first number last January. Each number consists of about 50 pages printed on cream-laid paper in clear type. Besides original communications there are many abstracts from foreign sources arranged under headings such as therapeutics, infective diseases, cardiology, endocrinology, tropical pathology, &c.; these are particularly full and carefully done. In addition to notices of new books there are some items of general medical interest. The March number contains three original articles in reference to encephalitis lethargica. P. Guizzetti describes six autopsies of patients between 17 and 44 years of age who died from this disease after a duration of from 6 to 35 days. In the early cases there was hæmorrhagic encephalitis of the optic thalami and round the aqueduct of Sylvius; in the later cases naked-eye examination of the brain and spinal cord was practically negative. Microscopically there were accumulations of lymphocytes and pyroninophile cells (Pappenheim) in the perivascular lymphatic sheath and scattered foci of inflammatory infiltration. Investigations on micro-organisms proved negative. Professor Gabbi investigated personally the oculo-cardiac reflex in cases of encephalitis which occurred in an epidemic in Parma in 1919. He found that this reflex was markedly exaggerated and that this phenomenon also took place even when the cornea was anæsthetised by cocaine. Dr. Giuseppe Gotti describes an epidemic of cases of hiccough which occurred at Ravenna in December last, and was almost synchronous with an epidemic of lethargic encephalitis. In many cases of the latter there was a monomuscular clonus observed, comparable to the diaphragmatic clonus which characterised the previous epidemic of hiccough, which seemed to be due to some disorder of the central nervous system.

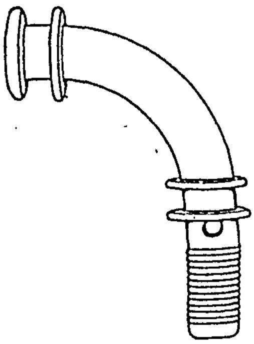
Rivista d'Ostetricia e Ginecologia Pratica. January, 1920.—This periodical enters its second year with this issue. The publication is of an eminently practical character and accepts contributions on obstetrics and gynæcology from all sources. Moreover, it publishes the proceedings and transactions of the Sicilian Society of Obstetrics and Gynæcology. Another feature is hat it limits its advertisement pages to products of ational industry, being convinced that Italy can hold own in this respect. The present number contains ommunications by Dr. F. Cusmano on a case of erforation of the Gravid Uterus at the Third Month with a Strangulated Cervico-vaginal Intestinal Hernia; by Professor F. Chidichino on a case of Vesicular Mole; and by Professor G. Giglio on the Trend of Maternity Help at the Present Day.

Acta Societatis Medicorum Fennicæ "Duodecim."—A natural corollary to Finland's re-birth as an independent State is the ambition on the part of Finnish scientists to publish their works under their own auspices. Hitherto works by Finnish medical men have largely received publicity at the cost of mersion, not to say submersion, in the medical journals of the chief European countries. Purely from the scientific point of view, this pooling of knowledge is praiseworthy, but the Nationalist point of view cannot be ignored, and it is obvious that the rôle of guest in the house of a stranger is apt to prove galling. In the past Finnish writers wishing to publish their works at home have found the medium of the Swedish and Finnish languages too cramped; they mean little or nothing to the world outside the Scandinavian countries. It seems, therefore, a wise compromise for Finnish scientists to publish an independent Finnish journal in English, French, or German according to the linguistic capacity of each author. All the papers in the first three volumes of "Acta" happen to be in German. Of their high scientific standard there can be no doubt. In the first volume Dr. J. A. Murto writes about Die Thermoresistenz der Syphilissora and Dr. H. R. Malmio about Das Alter der Menarche in Finnland. In the second volume Dr. Murto's paper is concluded, and Dr. B. Grönroos deals with Untersuchungen uber die Wassermannsche Reaktion bei der Primärsyphilis. The two papers in the third volume are anthropological, and deal with the development of the jaw in man and the length of the intestines in Finnish adult males. These five papers run to nearly 400 pages, and it is therefore a pity that the authors have not made a rule of printing a summary of their findings at the end of each paper as a concession to readers with limited time. The cost of each volume is provisionally put at 10 Fmk., and subscriptions and offers to exchange journals should be addressed to the Editor-in-Chief, Nervanderinkatu 8, Helsinki, Suomi (Finland).

New Inventions.

A TUBE FOR DRAINING THE BOWEL.

THERE is often difficulty in keeping a tube satisfactorily fixed in the bowel that would at once allow drainage of the latter to take place and prevent leakage occurring too soon. In many instances the tube slips out before it is desirable that it should do so, with all the inconvenience and risk that attends such a contretemps. After trying tubes of various kinds, it has been found that the tube illustrated in the diagram overcomes these objections. It is made of metal, has comparatively large flanges, between which the bowel can be sutured round the tube, tightly enough to prevent it from slipping, and yet not so tightly as to lead to a rapid necrosis of the coats of the bowel grasped in the suture-ligature. The chief feature of this tube, however, is the flexible, closely wound spiral spring which forms a continuation of the rigid tube, and lies in the lumen of the bowel. This acts as an internal splint, thereby overcoming the tendency of the tube to fall over to one side—an occurrence which, in the case of some tubes employed in this way, would appear to be the cause of them slipping out of the bowel. These tubes have been used in many cases spread over a number of years, and there has not been any instance in which a pressure necrosis of the wall of the bowel has been produced by the flexible portion. A large opening at each side of the tube allows for a free escape of flatus. In cases where the large bowel has to be brought out permanently, a tube having the spiral portion set at a right angle to the rigid part may be employed, as this shape permits the internal portion to lie outside the abdominal cavity. When dealing with a greatly distended small bowel, in cases of acute obstruction, it has been my practice for the last 25 years to empty the proximal bowel and return it into the abdomen, often with great advantage. At first I employed a rigid tube for this purpose, but many years ago designed one with a flexible part 9 inches long which has proved a great improvement over the rigid tube, in that it takes the turns of the bowel easily, and in consequence allows of a greater length of bowel being threaded upon the tube as the emptying process continues.



These tubes have been made for me by Messrs. Baird Bros., 97, Bath-street, Glasgow.

J. HOGARTH PRINGLE, M.B., C.M. Edin.,
F.R.C.S. Eng.

Glasgow.

THE LANCET.

LONDON: SATURDAY, APRIL 24, 1920.

International Health.

AN International Health Conference has been sitting in London at the Ministry of Health, the delegates of the Conference being as follows:—

Chairman.—Viscount Astor.

France.—M. Brisac; with M. Leon Bernard, M. Boujard, and M. Thiebault as technical advisers.

Great Britain.—Sir George Newman (when his other engagements permitted, but the Britain vote was left with Dr. Buchanan) and Dr. G. S. Buchanan, C.B.; with Dr. Steegmann as technical adviser.

Italy.—Dr. Lutrario, Dr. Fornaciari, and Dr. Druetti.

Japan.—Dr. Yoneji Miyagawa; with Mr. Kakichi Kawarata as technical adviser.

United States.—Surgeon-General Rupert Blue.

League of Red Cross Societies.—General Sir David Henderson, K.C.B.; with Colonel R. P. Strong, U.S.A., as technical adviser.

Office Internationale d'Hygiène Publique.—Dr. Pottevin.

The Belgian and Brazilian Governments were invited to send representatives, but owing to the alteration of the date of the Conference their delegates were unable to be present. The Secretaries of the Conference were Dame Rachel Crowdy (League of Nations) and Mr. L. G. Brock, C.B. (Ministry of Health).

There attended, as additional members for discussion of typhus in Poland, Dr. Chodzko (Vice-Minister of the Polish Ministry of Health), and Dr. Rajchmann.

The Conference was convened by Dr. ADDISON, British Minister of Health, at the request of the Council of the League of Nations, and its first purpose has been to consider the erection of an International Health Office under the League, roughly as a parallel to the International Labour Office provided under the covenant of the League and, moreover, recognised by the Peace Treaty. There is a clear statement in that covenant that the League of Nations would concern itself with international health, and in the knowledge that he would meet with the sympathetic support from other nations supporting the League, Dr. ADDISON convened a preliminary informal Conference last July. At this Conference a memorandum on the whole subject of the erection of an International Health Office under the League of Nations, setting out the lines on which it might be organised, had been prepared by the Ministry of Health, and was submitted last summer to representatives of the public health services of Great Britain, the United States, France, Belgium, the Office Internationale d'Hygiène Publique, and the League of Red Cross Societies, the steps being taken by the British Ministry of Health after consultation with the acting secretary-general of the League of Nations. A formal memorandum was then prepared and submitted for consideration, embodying general principles and ideas, and it was agreed that this more or less complete scheme should form the basis for subsequent discussions at which representatives of the provisional international secretariat of the League of Nations could be present. The formal conference having taken place last week, a formal scheme was drawn up to be submitted to a formal international conference, which it was hoped would be convened for the purpose by resolution of the Council of the League of Nations. This is the present position, and we have set it out in detail, as it is important that medical men should understand both the plans for the maintenance of health which it is proposed should be put into action under the covenant of the League of Nations, and also the deliberate and thoughtful actions precedent to those plans. And we may say here that the scheme arrived at is, in our opinion, suitable, far-reaching, properly comprehensive, and capable of extension to meet subsequent circumstances.

The scheme provides for the formation of an International Health General Committee, to consist at the outset of delegates appointed by all the Governments represented on the Committee of the Office Internationale d'Hygiène Publique, and of such nations as have not yet joined it, but are adherents of the League of Nations. It may, therefore, include representatives of Governments not as yet signatory to the covenant of the League of Nations, but who have signed the Convention of Rome of 1907—a very significant point when we remember the position of the United States of America with regard to the League, and of Japan with regard to the Office Internationale. The recognition of the Office Internationale d'Hygiène Publique, which has been sitting in Paris, has been rightly earned by much good work, as those who have read the notes on its Bulletins in our columns will recognise. Subject to the approval of the Governments signatory to the Rome Convention, the Office Internationale will form an important part of the new International Health organisation under the direction of the League of Nations. The General Committee will only sit as occasion may require, though not less than once a year, but a much smaller Executive Committee is provided for, to meet at least quarterly, with powers to settle questions requiring urgent consideration. On such matters the Executive Committee can appoint its own subcommittees, calling in technical advisers on special points. The chairman and members of this body are only elected for three years, but are eligible for re-election. To them will be committed the duty of choosing the medical secretary and the necessary staff, and they will be responsible for the conduct of the office at the seat of the League of Nations. They will be empowered to draft new covenants, to revise existing ones, and to conduct all the business of obtaining technical, trade, and other advice, and of reporting for the consideration of the Council of the League of Nations any default on the part of the members of the General Committee. For under the deliberations of the larger and controlling body all the conventions must come, each member having it as his duty to bring any new or modified convention before the authority within whose competence the matter lies.

The functions of such an International Health Office, as provided for in the scheme, open before us a vista of international health which has long been the ideal of all medical men. Medical men have seen from the moment that the idea of the League of Nations took shape in a practical form that their science would constitute one great thing whose international character could never be disputed. It is to the benefit of the world that the health of the world should be bettered, and that universal and harmonious schemes of prevention should be given full play. It is proposed that the Office should be constituted with the duty of advising the League of Nations in matters affecting the health of the world, bringing administrative health authorities in different countries into immediate relationship with each other. Rapid interchange of information will be secured thereby, when world-wide precautions against epidemics can be taken. A ready method for revising international agreements as to administrative action in matters of health will come into being, and international suppression of cholera, yellow fever, and plague can be undertaken, prompt action meeting new conditions as they arise. In two respects the International Health Office shows both a broad outlook and a sympathetic attitude in its proposals. First, the Office is to be advisory to the International Labour Office on health questions. We have only to think of the sections of the populations concerned, whose immediate and personal interests will be most nearly affected by health regulations, to see how necessary it is that international labour should be in full accord with international hygiene. If inside the League of Nations a new organisation, having international outlook, can agree on the policy which is alike best for health and best for labour, a large proportion of the administrative difficulties will disappear, and before various ratifying bodies persons who would otherwise have been disputants will find themselves joint advocates. That this will be so is further assured by the presence upon the Executive Committee of a representative chosen by the governing body of the Labour Conference. Secondly, it will be the duty of the International Health Office to advise with the League of Red Cross Societies. The obvious benefit to the Red Cross is that it will receive prompt information and practical help when measures have to be taken to deal with emergencies, while the splendid organisation of Red Cross can be employed to its full value by the League.

The scheme is full of promise, and we have a right to be proud of the conspicuous part played by British energy and foresight throughout the deliberations for establishing the International Health Office. This much praise of our Ministry of Health ought not to look parochial even to advanced internationalists.

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The Neutrophile Index.

THE Arneth reaction, to which Dr. H. A. TREADGOLD has drawn attention in a recent number of THE LANCET, has attracted little notice in this country, though it would appear to have considerable importance, especially in the prognosis of cases of pulmonary tuberculosis. This neglect may possibly be due to the laborious technique which the estimation of the index entails, for it demands more time and care than the clinical pathologist is usually able to afford. One observer states that he counted 40,000 leucocytes before his results coincided with those obtained by ARNETH, though after this intensive training he became proficient and had no further difficulties. The white cells in the circulatory blood number some 7000 in a cubic millimetre, of which about 5000 are neutrophile, or polymorphonuclear, leucocytes, and it is common knowledge that the total number and relative proportion of these cells may vary very greatly in certain pathological conditions. Indeed, the differential leucocyte count is one of the most valuable commonplaces of clinical pathology. ARNETH attempts to carry the matter a step further, and his reaction depends upon the recognition that the number of the lobes of the nuclei of the neutrophile leucocytes vary in certain infectious diseases, though in health they remain constant. This variation consists in the presence of an unusually high proportion of cells possessing single or bilobed nuclei, and a relative diminution of the types with three-, four-, or five-lobed nuclei. Expressed numerically, the Arneth index for normal blood would be 40:60, where 40 is the number of leucocytes of the first group, 60 that of the second group. In disease, for example in progressive pulmonary tuberculosis, an index might be 88:12, a variation which ARNETH describes as a shift to the left; very rarely the shift is to the right.

The explanation of this shift is still a matter for speculation, since we lack exact knowledge of the life-history of the mature blood leucocytes. The origin of the granular leucocytes from the parent tissue of the bone-marrow is well established. Under abnormal conditions lymphadenoid tissue may give rise to a certain number of neutrophile cells, but this accessory production is never of great importance, and in disease, as in health, the bone-marrow is the chief leucopoietic tissue. But while we know something of their origin, we know very little about the white blood cells after they enter the circulation. How long they survive and what is their ultimate fate are questions which still remain to be answered. Under normal conditions many leucocytes disappear from the body by emigrating on to the surfaces, especially of the respiratory and alimentary tracts. Others, presumably senile ones, are phagocytosed by endothelial and reticular macrophages in the spleen and the lymphatic glands. And in many inflammatory conditions, apart from an exaggeration of these processes, enormous numbers of leucocytes are disposed of in the form of pus. Similarly, our knowledge of the actual structure of these cells is far from finite, and it is by no means certain that the morphology of the mature leucocyte is constant. Some observers claim that the nucleus alters its shape during amœboid activity of the cells, though it is doubtful whether this alteration is ever fundamental, whether, that is to say, nuclear bridges ever become so attenuated during physiological activity as to simulate the fine filamentous connexions of the multilobed nuclei. The shape of the nucleus, however, may be altered by adverse physical circumstances—i.e., by over-heating; and, as a degenerative process, nuclear agglutinations may give rise to uninucleate forms, while the actual bulk of nuclear matter may be diminished by fragmentation with separation of small particles.

Two theories of the Arneth index are in vogue. According to one point of view it represents an increased proliferative activity of the marrow, and a consequent flooding of the circulating blood with young or immature leucocytes. The other theory ascribes the preponderance of the simpler type of cell to a disproportional destruction of the mature, more actively phagocytic leucocytes. Both these conceptions depend on the assumption that the age of the leucocyte may be deduced from the degree of lobulation of its nucleus. It is probably true that the maturity of the cell can be deduced from the actual bulk of nuclear matter present. Thicker segments and broader bridges indicate a younger cell, while smaller lobes with delicate filamentous connexions suggest senility. Beyond this, however, it is scarcely justifiable to go. Again, the suggestion contained in the second theory that phagocytic activity is the prerogative of the mature or even senile cell is, on the face of it, not highly credible. Of even greater theoretical importance is the question why the Arneth shift to the left should occur at all in tuberculosis. A leucocytosis is a definite expression of an immunity reaction on the part of the body, and is called forth by a variety of toxic agents, particularly the toxins of certain microbes. But the tubercle bacillus, like the organisms of typhoid fever and certain other infections, calls forth no neutrophile leucocytosis, and the modern tendency is to look on the lymphadenoid tissues as the ones chiefly concerned in the immunity response. It is difficult to understand, therefore, how a pure infection with the tubercle bacillus can so disorganise leucopoiesis as to affect the neutrophile leucocyte. Neither of the current theories is adequate to explain this, and it is clear that much work remains to be done before we can dogmatise on the subject.

The Budget.

THE Budget, introduced by the Chancellor of the Exchequer on April 19th, calls upon us all to sustain the finances of the country as best we can. Increased taxation in many directions reflects the price of national safety, and implies also personal sacrifices in many directions. We are glad to note that, generally speaking, the necessaries of life have escaped the Treasury net. Beer, wine, and spirits will cost the consumer more, and in some instances the increased taxation on such commodities is very heavy, the receipts from these sources being estimated at an advance of approximately eighty millions. This decision may well have a marked effect in diminishing the consumption of alcoholic liquors. Postage will cost more, and there will be few, even to the poorest, exempt from this burden. Proprietary medicines, which are curiously bracketed in the same category as playing cards and coffee mixtures, are anticipated to yield a sum equal to that of the previous financial year. In regard to motor vehicles, taxation as from January, 1921, is to be based on weight in the case of those used for trade purposes, upon seating capacity in the case of hackney carriages, and upon horse-power unit in the case of ordinary cars. In this connexion it may be noted that the abatement of duty granted in the case of motor cars used by medical practitioners or veterinary surgeons will cease on the same date, when also the motor-spirit duty will be abolished. Medical men therefore cease to receive preferential treatment in respect of the purpose for which they use their cars. The chairman of the Medico-Political Committee of the British Medical Association points out in a letter which appears in the current *British Medical Journal* that the medical profession will be injuriously affected by the proposed changes. Their cars are used exclusively for purposes of medical practice, many of them having a nominal power which is much exaggerated by the R.A.C. formula. If all rebates are abolished the extra cost to the owner of a 21 h.p. car (R.A.C. rating), doing a mileage of 7500 in the course of the year, will be £11 12s. On a larger mileage the extra cost, of course, decreases pro rata. Rural practitioners may further suffer from the necessity of keeping two cars in order that they may not be prevented attending an urgent call owing to a car breakdown. Also of some medical interest is the fact that the Chancellor has found an increased source of revenue in tobacco, which he attributes partly to the popularity of cigarette smoking amongst women. No harm to the nation will result from a diminution in this indulgence, at present carried to grave excess by both sexes. Substantial relief in income taxation is proposed in the case of families with moderate incomes. On the whole, the financial proposals seem framed on democratic and reasonable lines, having regard to the colossal financial requirements of the country. It would be anti-social to find fault with the general policy of the Treasury, which seems aimed most at the resources of those who still live comfortable lives and have something over.

Annotations.

"Ne quid nimis."

THE APPROVED SOCIETIES' VIEW OF STATE MEDICAL SERVICE.

AT the recent annual conference of the National Health Convention of the Association of Approved Societies a resolution was carried in favour of substituting a comprehensive State Medical Service for the existing panel system and public health services, in order to secure to the whole population at the national expense the most efficient and complete service that medical, surgical, and dental science can offer. The resolution gives in effect the most recent and explicit definition of what is implied in a State Medical Service—namely, the abolition of private practice, and the establishment of medical treatment provided by the State for all citizens. There is, indeed, much to be said for a non-contributory service to which all are entitled by virtue of their citizenship, and financed by a special public-health rate contributed in a manner similar to the education rate. It is already obvious that for a majority of the population medical treatment must be State-aided. The health of the individual has become the concern of the State and cannot be left entirely to individual responsibility. So far, so good. But the fallacy in the propaganda of the Approved Societies is the implication that the panel system is incompatible with a comprehensive and up-to-date medical service. Great extensions of the system are in contemplation, and it is of the first importance for the public to understand that these aim at providing a really efficient service at the hands of medical men who are general practitioners and who will retain a large degree of independence. The clinical practitioner responsible for the treatment of the individual citizen must not become an official person; he should maintain his present intimate relationship to his patients. As far as practicable the free choice of practitioner should be preserved to the citizen, and the scope of choice can be enlarged beyond its present range if treatment is centred at clinics where a number of practitioners are congregated. The Approved Societies demand a State Medical Service in which it appears that the doctors are to be salaried officials. We may ask: Are they prepared to merge themselves into a State Approved Society, a change which would appear desirable in the interests of efficient registration and control?

CLINICAL KINEMATOGRAPHS.

OF the value of the kinematograph film in education there can be no doubt, and recently an attempt has been made to employ the same appliance in the instruction of the medical student. It is clear that the method is likely to prove more widely useful in surgery than in medicine, for the medical conditions which can be usefully demonstrated in the kinematograph are somewhat limited. The ataxic gait can, indeed, be well shown, and various other nervous phenomena are equally easily demonstrable, but it is in the representation of surgical operations that the utility of the method will be most manifest.

A private demonstration was given last week by the Selig Film Company, in connexion with the Phillips Film Company, of some of the possibilities of the kinematograph in the teaching of surgery, when some excellent films were shown. The operation of gastrostomy was the first exhibited, the surgeon whose operation had been photographed was Dr. H. Lilienthal, and the several stages were very clearly seen. Another film exhibited was the placing on an inlay bone-graft to fix a chronic tuberculous knee-joint, by Dr. F. H. Albee. Here the use of the twin saw in cutting the inlay was excellently represented. This was done before the knee-joint was opened in order to avoid the risk of infecting the healthy bone. When the diseased joint was laid open portions of the femur and tibia were removed, the trough for the inlay was cut, and the insertion of the inlay followed; it was fixed in position and the wound was closed. A plaster splint was then applied. In this, as in the other films, the several stages were preceded by a short account shown on the screen of what was about to be done. Other films followed, and it may be said that, on the whole, they were all excellent. Each member of the audience—if we may apply that term when there was nothing to hear—could see perfectly the details of the operation—better, indeed, than if he had been present, for in nearly all operations there are only two persons who see everything that takes place—the surgeon and his chief assistant. And, indeed, it must be so; any attempt by the onlookers to get close enough to see everything would manifestly interfere with the operation. The camera is under no such disability; it is placed, in nearly all cases, above the table entirely out of the way of those taking part in the operation, and there it is able to record with perfect fidelity all that takes place. Films such as those shown at the private view cannot fail to provide valuable instruction to all studying the subject. Each film can be passed through the lantern at any speed desired, and the demonstrator can direct that it should travel slowly when it is wished that the details should be especially clearly seen. He can point out what is of importance and explain the reason of everything that is done. There is not the slightest difficulty in having the film passed once more through the instrument, if the demonstrator wishes to hark-back to some point which has not been fully understood. We are told that there are some 600 films already prepared, and the number is being added to every week. Most of the leading surgeons of the United States have provided films in this series, and if we may judge of those we did not see by those that were shown their value must be very great. The company is willing to record the operations of any surgeon for his private use in teaching his classes, so that the students can see, before an operation is done, what the surgeon intends to do, and thereby they will gain much more advantage from seeing the operation itself than if they had not learned beforehand what they were to expect.

There are certain parts of an operation the repetition of which would be tedious; thus the suturing of a wound is of comparatively little interest in most cases, though sometimes the method in which it is done is of importance. Ordinarily, therefore, only the commencement of a suturing is shown and then there is a sudden jump to the completion of the suture. We would not be considered hypercritical, but there is one point in which we would suggest a definite improvement. We acknowledge freely the extreme value of the method as exhibited to us, but the absence of colour cannot but deprive the exhibition of these films of some of their value. To see black blood flowing from the wound is certainly curious; moreover, the onlookers cannot distinguish clearly the different tissues, and we feel sure that coloured films of operations would quite double their value. Even as they are the results are excellent. We are well aware that to obtain coloured films would slow the action somewhat, but we feel certain that this improvement must come to pass.

RECOVERY FROM ADDISON'S DISEASE.

Dr. Raymond Giraudeau[1] devotes his inaugural thesis to the description of a case of Addison's disease, which ended in recovery, death occurring 11 years later from cancer of the stomach, when the autopsy confirmed the original diagnosis. The patient was a man, aged 39, the subject of chronic alcoholism, who on admission to hospital in November, 1901, presented well-marked asthenia, pigmentation of the skin, and buccal mucous membrane, diarrhœa with abdominal pain, and a feeble pulse. On Jan. 4th, 1902, he was given an injection of suprarenal extract, and the injections were continued for 12 days. Improvement took place in the general condition, and there was a marked increase in weight. The injections were resumed on Jan. 27th, when the abdominal pain and diarrhœa were very violent. On Feb. 1st the pigmentation had considerably diminished, and during the next two months disappeared from the skin and from the palate. The general condition of the patient had meanwhile improved so much that he was discharged in the summer of 1902. Except on an occasion when he was interned for an attack of alcoholism in June, 1904, he was lost sight of till February, 1913, when he was admitted to the asylum for another attack. Death took place on March 13th. Apart from carcinoma of the pylorus with metastases in the liver, the only lesion found post mortem was some scar tissue in the right suprarenal, indicating the occurrence of inflammation many years previously. The nature of the lesion could not be determined. There was no evidence of tuberculosis or syphilis in the other organs. Dr. Giraudeau comes to the conclusion that in cases in which generalised and transient suprarenal incompetence is the result of a localised inflammatory lesion treatment may be effective, whereas it is of no avail in caseous tuberculosis of the suprarenals.

INFANTILE DIARRHŒA AND VOMITING.

IN his article on p. 906 Dr. G. Douglas Sherwood calls attention to a subject of great contemporary importance. He claims that both diarrhœa and vomiting in infants are practically always of infective origin, and that both symptoms, either singly or in combination, can be prevented by certain antiseptic and aseptic precautions. It is satisfactory to learn that in Upwick Vale Home, where these prophylactic methods have been adopted, and from which the data of this paper are drawn, the system has given such favourable results, for similar attempts in other institutions both in England and on the Continent have proved signally ineffective in the prevention of epidemics of diarrhœa. The management of any large number of bottle-fed infants in one and the same ward appears to present difficulties which are directly proportional to the number of the inmates and indirectly to the number of nurses employed. Whether the infection is conveyed by direct means or is air-borne does not appear to be proven at the present time, but in either case the prophylactic measures described by Dr. Sherwood would meet the necessities of both cases, provided the technique is carefully observed. Good as are the mortality figures given by Dr. Sherwood as obtaining in this home, it is not justifiable to compare them with the general mortality-rate of the whole population without giving details as to the age of the infants and the number of breast-fed as compared with bottle-fed infants. Similar claims have been made with respect to results obtained in welfare centres, which are, as a rule, exempt from the unflattering mortality which occurs during the first few weeks of life and which, of course, greatly raises the general mortality rate. No doubt the prophylactic technique employed at the home in question is not unnecessarily elaborate in the case of institutional management, if it is to prove at all effective; but it is questionable whether it would prove practical or indeed necessary under ordinary domestic conditions in which the infant is more or less isolated and is only exposed to the risk of autogenous infection—if indeed this is so serious a risk as is implied in Dr. Sherwood's paper. We are not greatly impressed with the theory of the infective character of most cases of vomiting. This symptom is so essentially controllable by dietetic means, and so rarely occurs when the intervals between feeds are adequately prolonged, that we hesitate to believe, apart from its complicity with diarrhœa, that it is associated with an infective ætiology.

THE MYTH OF BACTERIAL LONGEVITY.

THERE is, perhaps, no well-established fact which the laity finds more difficult to grasp or to believe than that bacteria are present, sometimes in immense numbers, on every particle of material substance with which we come into direct contact. The failure to grasp this has sometimes a material consequence. How often have we not seen even trained persons sterilise an instrument and then undo their work by touching it with the unclean hand? The immaterial consequences which may flow from the inability to conceive how widespread is the distribution of bacteria are more difficult to define; the direction of a man's thought may be influenced by his proneness to accept as proved statements which the most elementary knowledge would show to be improbable. If an announcement were made in a reputable scientific journal that living spores had been found in an Egyptian mummy, and the conclusion drawn that the spores had lain dormant a couple of thousand years, we should be entitled to doubt the accuracy of the observation; we should remember that it is difficult to take a sample of any substance without introducing one or two extraneous organisms. The observation would have to be made repeatedly and by more than one competent technician before we should be expected to accept the statement. The difficulties of avoiding contaminations are ever present to the bacteriologist, and they breed a healthy scepticism of any "marvellous" results. The solution of problems of vital philosophical importance, as, for example, the question of the spontaneous generation of life, has depended upon the satisfactory avoidance of accidental contaminations. We are led to make these rather platitudinous remarks after reading a leading article in the *Daily Telegraph* of April 13th, in which the "Immortality of Microbes" is discussed in an agreeably discursive way. A thin and tenuous web of fancy is spun round the reported discovery, to which our Paris correspondent also calls attention this week, by a French savant of living microbes in amber. It would be a breach of good manners, and would expose us to the horrid charge of lack of a sense of humour to subject such a pleasantly written essay to sober criticism. We content ourselves with expressing doubt as to the existence of these million year old microbes, and to pointing again to the possibility of contamination with organisms born but yesterday. The popular sense of wonder at the beauties (and the horrors) of nature demands satisfaction, sometimes in a grotesque and sometimes a refined and literary form which our newspapers supply. The solid satisfaction which comes from exact knowledge must be preceded by close and hard study, and is enjoyed by the few.

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[1] Thèses de Paris, 1919-20, No. 31.

SCHOOL MEDICAL ADMINISTRATION IN SCOTLAND.

The Scottish Board of Health has taken over the powers and duties of the Scottish Education Department in regard to the medical inspection and treatment of children. This fact was briefly recorded in The Lancet of April 10th, and it may be well to consider further some of the important issues involved. In the first place, the actual carrying out of the inspection and treatment continues to devolve upon the local education authority whose duties are not altered in principle by the new relation established between the Board of Health and the Education Department. In its memorandum, which deals broadly with school administration in general, the Board of Health, however, urges close coöperation locally between the public health and education authorities. The latter are enjoined to appoint their school medical officer as administrative head of all services coming under the scope of school head administration, and this, if carried out, would be a great step forwards in unification. In the majority of Scottish areas the county medical officer is already school medical officer; it would be all to the good for the junior dual position to be held by the local medical practitioner, who is the one person trusted alike by parents and children. At the moment, possibly, he may not hold the diploma of public health which the Board of Health regards as indispensable, but it must be admitted that this diploma is now of little use to the school officer. It serves, however, as a proof that the holder's attention has been turned in a special manner to public health problems. In a decade or two the scope of the diploma will have been altered, and then the practitioner will be found glad to avail himself of the curriculum in public health. He will then learn the right way to control an epidemic of scarlet fever, of measles, or of diphtheria, and closure of schools for infectious disease will become as extinct as the dodo. He will learn how to diagnose and classify children according to their mental capacity, and he will gain facility in determining mental deficiency. In the meantime it is to be hoped that the Board of Health will not sacrifice its splendid ideal of administrative coöperation by urging local authorities to exclude the undiplomate practitioner.

As regards the school medical work, the Board of Health's memorandum lays stress on preventive work, suggesting three routine medical examinations for the child in the primary school, although the authority may, if it wishes, institute a greater number. Re-examination of defects, and examination of special cases presented by teachers, along with treatment and examination after treatment, will, in any case, keep the staff fully occupied. For the higher grade and secondary schools one examination at least is suggested, at or about 17 years of age, the period of adolescence when the child's metabolism is undergoing so radical a change. An examination made then may avoid the necessity for a change of career later. It is encouraging to note that the Scottish Board of Health frankly recognises the futility of laying down a uniform procedure for all education authorities. Scattered and sparsely attended schools in the Highlands and Islands cannot squeeze into the same mould as those in the densely populated districts of Renfrewshire, and much is left to local discretion; in the case of remote schools with an average attendance of under 30 pupils the obligation resting on the school doctor to pay two regular annual visits no longer holds.

Another point to which prominence is given in the memorandum is the following up of the work of the school doctor by the school nurse. The school nurse might be a much more effective factor in the service than she has hitherto been, whether in Scotland or England. This is to be done by combining in the person of the school nurse the functions of tuberculosis nurse and visitor, child welfare worker, and other duties of a similar kind. No one is better fitted than the right sort of district nurse for the particular area to coöperate with parents, children, and doctor in matters of personal and public health. When it comes to inspecting heads nurses might avoid odium by a temporary exchange of district. The Board desires each education authority to draw up its own scheme for medical inspection and treatment without delay, the memorandum serving to indicate the general lines to be followed, while still leaving scope for individual enterprise.

CREDÉ'S METHOD AND PUERPERAL SEPTICÆMIA.

Suggestions as to the Causes of the Persistence of Puerperal Septicæmia since the End of Pre-antiseptic Times is the title of an interesting paper by Dr. D. Berry Hart in the *Edinburgh Medical Journal* for April, 1920. The author states that now and for some time the mortality has not fallen in Great Britain and Ireland much below pre-antiseptic times as far as 1822. Two factors are given in the production of puerperal septicæmia—the first, imperfect asepsis and antisepsis; the second, defects in labour technique on the part of the obstetrician. The latter is specially discussed in this article. The method of expulsion of the fœtus is given, and the author shows that the "final passage of the head is in some respects disadvantageous and requires careful handling." Careful guarding of the perineum is necessary and in elderly primiparæ episiotomy is useful. The mechanism of the third stage of labour is then discussed, and the author's well-known views on this subject are given in detail. He regards the Credé practice as a great misfortune in the technique of the management of the third stage, the danger being that small pieces of placenta and larger pieces of membrane may be left in utero, with septic infection following. The author imposes on himself an hour limit before interfering if hæmorrhage is not going on. Careful examination of the placenta and membranes is very important, and the writer recommends that a record should be kept of the state of all placentæ and membranes and of their relation to morbidity and mortality.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

THE annual congress of this body, to be held from April 29th to May 1st at the House of the Royal Society of Medicine, promises to maintain a high standard of interest. The programme includes numerous papers, a clinical meeting, a visit to the special hospital of the Metropolitan Asylums Board for cases of ophthalmia neonatorum, with a discussion on the prevention and treatment of that disease, another discussion on Diabetes in Relation to Diseases of the Eye, and a dinner. Full details will be found in our Medical News column.

THE PHYSICAL SIGNS OF FOREIGN BODIES IN THE BRONCHI.

IN the *American Journal of the Medical Sciences* for March Professor Thomas McCrae, of Philadelphia, has published a careful study of the physical signs of foreign bodies in the bronchi in a considerable number of cases. The opportunity to examine the patients was given to him by his colleague, Professor Chevalier Jackson, a laryngologist, whose experience of foreign bodies in the air-passages is unrivalled. It might be supposed that a foreign body could not pass into a bronchus without producing symptoms which must be noticed. But this is not so. In one case an atomiser tip had been aspirated and the patient knew nothing of it. All that he could remember was that 18 months ago the tip had disappeared. He was thought to be suffering from tuberculosis. A boy of 8 was sent for some laryngeal condition and part of a collar button was found in a bronchus. No history of any acute onset could be obtained. Professor McCrae's impression is that such cases are by no means rare, and that foreign bodies in the bronchi are much more common than is generally supposed. The greatest difficulty of diagnosis arises when the body cannot be recognised by means of the X rays. These cases probably number from 10 to 15 per cent. of the total. There are two groups of unrecognised cases. In one the body sets up acute inflammatory changes which are soon fatal, and pneumonia is generally diagnosed. These cases particularly follow aspiration of some kind of nut by a young child. In the other group the symptoms become chronic, and pulmonary tuberculosis or bronchiectasis is diagnosed. In the physical signs there is great diversity. A closed safety-pin is not likely to cause much change in a short time, while a screw or tack, which plugs a bronchus, produces rapid changes. A body may plug a bronchus at one time and not at another, so that the signs vary. If this occurs at a short interval it is a striking point. Thus in one case the signs suggested collapse of the involved lobe and a few hours later it was apparently overdistended, which raised the idea of valvular action. The signs may be local or general; signs over both lungs are not uncommon, and they may be more diffuse on the unaffected side, which may lead to serious error. The only sign which was present in every case examined by Professor McCrae was decreased expansion on the affected side. It may be the only sign. In some cases râles, which may be termed characteristic, were heard over a small area. These may be described as very fine and softer than the early crackling râles of lobar pneumonia. They may be compared to the crackling of fine tissue paper. Pneumonia is often diagnosed, but a careful study of the signs should prevent this error. Fever is common after aspiration of a foreign body, and if there is dyspnœa with cough and bloody or blood-streaked sputum pneumonia is suggested. Decreased expansion and dullness may bear out this view, but a careful study of the vocal fremitus and the auscultatory signs should show that if there is pneumonia there is also plugging of the bronchus—a rare condition. In many cases no breath sounds or râles are heard over the affected parts; in others there may be râles but no breath sounds. Later, fibrosis, abscess, and bronchiectasis may be found. Professor Chevalier Jackson has called attention to a new sign of foreign body in the trachea or bronchi,[1] which he termed the "asthmatoid wheeze." It is heard with both inspiration or expiration, but sometimes only at the end of forced inspiration, on placing the ear or bell of the stethoscope over the patient's mouth. This sign is of considerable value, particularly when the foreign body does not show in the radiogram. Certain foreign bodies, particularly the peanut, set up very acute and dangerous changes in children. The clinical picture is rather distinctive and is one of œdematous, purulent tracheo-bronchitis, which often results in pulmonary abscess. The dyspnœa is extreme, cyanosis is usually marked, and there may be purulent tenacious sputum. The only distinctive signs which Professor McCrae finds of foreign body in the lung are "the asthmatoid wheeze" and the "tissue paper râles" heard over a small area.

THERE will be a meeting of the United Services Medical Society in the Library of the Royal Army Medical College, Grosvenor-road, S.W., at 3.30 P.M. on May 28th, to discuss the proposed amalgamation of the society with the War Section of the Royal Society of Medicine.

A MEETING of the Executive Council of the Federation of Medical and Allied Societies will be held at 11, Chandos-street, London, W. 1, on Tuesday next, April 27th, at 4.30 P.M., when the special business to be considered includes the urgent need by legislation for the efficient treatment of mental disorders in their early stages (submitted by the Medico-Psychological Association), and the steps which should be taken to secure for the nursing profession representation on the Consultative Council of Medical and Allied Services of the Ministry of Health (submitted by the College of Nursing).

LONDON PANEL: POST-GRADUATE STUDY.—Beginning in May it is proposed to hold a course of lectures and demonstrations on laboratory methods in connexion with the prevention, diagnosis, and treatment of disease, which will be given by Dr. W. W. C. Topley, director of the pathological laboratories at Charing Cross Hospital on Thursdays at 9.30 P.M. The fee for the course will be £3 3s. and certificates of attendance are to be given. Other courses are being arranged for the near future.

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[1] THE LANCET, Dec 14th, 1918, p 824

THE
CHINA MEDICAL MISSIONARY ASSOCIATION CONFERENCE AT PEKING.

DURING the first week of March there was held at Peking a highly successful Conference of the China Medical Missionary Society and the National Medical Association—170 doctors of the former and 65 of the latter society taking part.

Problems of Mission Hospitals: Medical Education in China.

Dr. C. J. DAVENPORT, the President, of Shanghai, in the opening address, surveyed the outstanding work of the Conference since it last met. He referred to the leading features of medical work in China, to the greater spirit of coöperation that now prevailed, to the prominence of women in the medical work, and to the advance of medical education amongst the Chinese. He was followed by Dr. WU LIEN TÊH, President of the National Medical Association, a body of foreign-trained Chinese medical men, who stated that the desire of his society was to work at all times in coöperation with their foreign colleagues.

The Conference then dealt with various problems of mission hospitals in China, Dr. SNELL speaking of the city hospital, Dr. A. C. HUTCHESON on the up-country hospital, Dr. H. S. HOUGHTON on hospital accounts, and Dr. R. C. BEEBE on coöperative supply organisation. In the afternoon sectional meetings were held, the section of most general interest being that devoted to anatomy and anthropology. Dr. S. P. CHEN read a paper on the Attitude of the Chinese Government towards Dissection. It showed that the Home Office officials now recognised the necessity of practical anatomy for students, and were willing to authorise the supply of unclaimed bodies, but were hampered to some extent by popular feeling, which is still far from favourable in this respect.

Medical education occupied much attention, the necessity for approximating the standards of teaching and examination to those of Western countries being recognised, while the practical application of these ideals was seen to present formidable difficulties, especially in schools which teach in Chinese. Representatives of the Ministry of Education presented papers on the Government Medical Curriculum.

Dr. CHOU WEI-LIEN, Director of the Government Animal Experimental Station, read a paper on the Milk-producing Powers of Different Cattle, more especially of the Mongolian Cow, and gave statistics which showed the increasing demand for milk by the Chinese, who are not nationally a milk-drinking race.

The Work of the Sections.

In the General Medicine Section Dr. W. W. CADBURY gave a paper on the Treatment of Leprosy, describing the work he had done on the subject. Most of the speakers who followed him were rather pessimistic on the matter of any specific cure. Papers were also read by Dr. R. R. ROSS on Insanity among Chinese, and by Dr. J. KIRK on Tetanus Neonatorum.

In the General Surgery Section Dr. OSCAR THOMSON dealt with the subject of Vesical Calculus, based on 3000 cases operated upon in the Canton Hospital. Discussion centred chiefly round the ætiological factor and choice of operation. The paper read by Dr. J. A. B. BRANCH on the Treatment of Empyema by Dakin's Solution, based on the experience of 100 cases, showed how highly successful the results had been, but in the subsequent discussion the main difficulty to doctors in charge of "one-man-hospitals" was stated to be the exact preparation of Dakin's solution.

A good deal of the Conference's attention was devoted to public health problems. Dr. S. WOO dealt with the work of the last few years, showing the immense strides that had been made in the education of the public and giving some idea of the amount of literature which had been circulated in China. Dr. W. W. PETER also read a paper on this subject, and daily gave kinematographic displays of health subjects, including a very telling film of venereal disease and its ravages.

Methods of Anthropometry was the title of a paper given by Dr. A. HRDLICHA, who made an appeal for the collection and recording of the valuable information that anthropometrical records in China would yield. Demonstrations were given on preparations of mitochondria in the somatic cells of ascaris, by Dr. SHUNICHIONO, of Japan; on experimental alterations in the mitochondria of plant cells, by Dr. N. H. COWDRY; on the interstitial cells of Sebright testes, by Dr. ALICE BORING; and on schistosoma larvæ in men and other animals, by Dr. E. C. FAUST.

A most interesting paper was read by Dr. E. T. HSIEH, entitled "A Review of Chinese Anatomy from the Period of Huang-ti (Yellow Emperor, 2697 B.C.)." Numerous illustrations of the philosophical conception of human anatomy current throughout this long period were shown, and the speaker pointed out that little or no advance had been made in this science in China since the Ming Dynasty, for the reason that the accurate study of human material has at no subsequent date been possible.

DR. H. J. HOWARD read a paper on the Origin of the Vitreous Humor in the Human Eye. He discussed the various current theories as to the origin of the vitreous, in the light of his findings in an eye enucleated for suspected glioma. Evidence of the double origin of the vitreous from mesodermal and ciliary sources was presented. In the discussion which followed, the importance of early recognition of such cases was pointed out, also their bearing on the prognosis in the case of congenital cataract operations.

Professor M. INOUYE, of Tokio, gave a paper on the Muscles of the Soft Palate. His investigations were carried out by means of dissection, microscopic examinations and reconstruction, and experimental and clinical observations. A most interesting result has been obtained—viz., that the M. uvulæ is innervated, not from the pharyngeal plexus as described in current text-books, but by way of the palatine nerves, ciliary ganglion, and second division of the trigeminal nerve. The passage of motor fibres to this muscle, by way of the petrosal branch of the facial, was excluded, and movements of the palate were elicited by stimulation of the peripheral cut end of the trigeminal.

A somewhat remarkable feature of the Conference was the evidence given by young Chinese medical men of the way in which they are taking up and furthering the cause of scientific medicine. In fluent English demonstrations were given and papers read by Dr. HENG LIU on Blood Grouping and the Technique of Blood Transfusion; by Dr. T. M. LI on Practical Considerations in Eye Refraction; by Dr. WANG LING NEW on Treatment of Uterine Fibroids; and by Dr. HUA LIU on the Comparative Anatomy of the Mastoid Process.

Diseases and Epidemics Met With in China.

On the fourth day instructive papers were read dealing with the diseases and epidemics met with in China. Dr. J. W. CHUN and Dr. L. T. WU dealt with the management of the last cholera outbreak at Harbin, where the Chinese Anti-Plague Service had well-equipped laboratories and hospitals. In 1962 cases, by the systematic use of Roger's hypertonic saline infusions, the mortality was brought down to 14 per cent. Dr. BRAFLADT made an analysis of 100 cases of cholera seen at Tsinanfu and urged the extensive use of kaolin (bolus alba). He gave as much as 800–1200 g. daily to each patient and used infusions only for severe cases.

Dr. P. T. WATSON read an interesting paper on Bubonic Plague in Shansi, in which he doubted the essential factor of rat-fleas as a cause of plague. He thought that human fleas might transmit it direct from one person to another, and recommended a widespread prophylactic vaccination among the people, for which purpose the Manchurian Anti-plague Bureau might be invited to extend its activities to other parts of China. Papers were also read by Dr. VAN BUSKIRK (Seoul) on the Diet of Koreans and by Dr. S. D. WILSON on the Diet of Chinese. The former pointed out the low caloric value of Korean diet, which is mainly vegetarian—rice, barley, and beans are consumed, but fat and meat are rarely eaten, the result being a dilated stomach and poor efficiency. The speaker referred to the greater vitality of white people, the result of their higher protein consumption. Dr. WILSON pointed out that ordinary bean curd, which is an important item of Chinese dietary and regarded as akin to cheese, has 86 per cent water and 14 per cent solids (which contain 21 per cent fat, 60 per cent protein, and 6 per cent. ash) as against our European cheese, which has 38 per cent water and 62 per cent solids In many schools he found scarcely any protein or fat given, the diet consisting mainly of a little cabbage, white Chinese bread, white rice, and some salt and radishes

At the next session Dr WU LIEN TEH gave an address on the Latest Phase of the Narcotic Problem, in which he showed figures representing the enormous increase of morphine injection in China, brought about by unscrupulous Japanese traders and British and American manufacturers The amount had increased from 5½ tons in 1911, 14 tons in 1914, to nearly 28 tons in 1919. Both Edinburgh and London firms of high standing were implicated, as was proved by samples of covers which were shown The Conference passed a resolution urging that immediate action should be taken for the better control of the production of opium and for the limitation of the manufacture of morphia and other derivatives to a quantity not exceeding that necessary for legitimate medical purposes

The Rise of Scientific Medicine in China

On the last day of the Conference the members with their wives attended a reception in the palace of President Hsu Shihchang The President addressed them in a speech referring to the great humane work which they had done throughout China, and spoke with emphasis on the progress of Western medicine and the benefit it could bring to the people This was followed in the evening by a banquet at the Army Medical College, where further complimentary speeches were made

The Chinese Government has shown much appreciation of the work which is being done, and a new era has been entered in which scientific medicine and surgery are no longer regarded with suspicion and animosity The founding of the China Medical Board (the Rockefeller Endowment), Hong Kong University, Chinanfu, and other medical colleges, has brought about a real awakening It is a movement which has come to stay, as evidenced by the numbers of Chinese students now entering the medical profession This Biennial Conference has brought to notice the part being played all over China by medical missionaries, British and American, in the cause of medical education It has also stimulated the delegates to further observation and research in a field which opens boundless opportunities for useful contributions to present day medicine

MEDICINE AND THE LAW

Sentence on a Professional Abortionist

AT the Central Criminal Court recently, Mr. Justice Shearman passed a sentence of ten years' penal servitude on Devi Dayal Sasun, L R C P. Edin , 1902, a native of India, practising medicine in the East End, for manslaughter The indictment was for the murder of a woman whose body was found in an archway at night near the prisoner's house The case for the prosecution was that the woman had asked Sasun to procure her miscarriage, and that immediately after he had operated on her with that intent, had died from shock in his surgery In order to conceal the crime he had carried the body to the place where it was found, and called the attention of the police to it, as though he had observed it casually in passing The evidence of Dr. B H. Spilsbury was to the effect that the woman died from the shock of the operation as stated above, and that though such an occurrence was rare, he had had experience of five similar cases. For the defence Dr. H. R Andrews, Mr Comyns Berkeley, and Dr. J. S. Fairbairn expressed opinions adverse to that of Dr. Spilsbury, to the effect that death from shock in such circumstances was so rare that it must be accounted as out of the question that it should have been caused by the operation in the case before the court.

More might have been heard of this view if the conviction had been one of murder and not of manslaughter. The latter verdict is not one strictly legal or logical, in that to cause death in the commission of a felony constitutes the crime not of manslaughter but of murder. It is, however, sometimes found, and it gave occasion for the police to go into the prisoner's record and antecedents, which were of such a character that the question whether in this particular instance his conviction was justified by the scientific evidence must to him, at any rate, have become unimportant Not only was there another indictment on the file which was not gone into, but the police had found on Sasun's premises documents which showed, when followed up, that he had procured, or had attempted to procure, abortion in a number of women It need only be pointed out that a single conviction in one of these cases would have rendered him liable to penal servitude for life, and, as a matter of fact, conviction in all of them, with cumulative sentences averaging ten years in each, would have involved condemnation to penal servitude for 1160 years!

A Remarkable Impostor.

At Liverpool Assizes recently Mr Justice McCardie passed a richly deserved sentence of five years' penal servitude upon a man named Richard Thomas Cubbin, who for many years and in various places has preyed upon the public with singular effrontery and equally remarkable success Cubbin was stated to have been the son of a collier and to have worked as such himself, losing a leg by an accident Since 1895 he had lived much abroad and had practised as a medical man. He is a married man who, having deserted his wife, has gone through the ceremony of marriage with other women in order to rob them. In one instance he persuaded the widow of a medical man who had died at sea that he was her lost husband returned to her after three years' interval His past sentences included one of penal servitude for bigamy and another for posing as a medical man and giving certificates of death In the present instance the sentence was for forgery and giving death certificates, offences committed at Blackpool and Wigan The epithet remarkable has been applied above to the success of this rascal's operations, because he was stated at his trial to have obtained posts as an assistant to medical men not only under an assumed name, Sir Alexander Thomas Munro, not in the Medical Register, but under the guise, unusual in such candidates, of a baronet a "colonel surgeon," a brigadier general, and a K B E , combinations of these titles appearing upon cards used by him. He even exhibited a coronet upon his stationery. This last peculiarity on the part of an alleged baronet may have helped to bring about Cubbin's undoing, but it is suggested that the other impostures, or any one of them, should have been enough. Medical directories, medical registers, army lists, and books of reference containing the names of baronets, with other particulars about them, are fairly accessible everywhere, and can be consulted without any possibility of hurting the feelings of a genuine candidate for a vacant post

Witnesses Under Subpœna and Expert Evidence

In an action tried recently in the High Court Mr. and Mrs A Leuw sued Mr. W A Bulleid for damages for an injury occasioned by the drill used by him in preparing one of her teeth coming in contact with the floor of her mouth. Severe hæmorrhage took place, and questions arose at the trial, not only with regard to the manner in which the accident was brought about, but also with regard to the subsequent treatment of the wound In the end Mr Justice Bailhache awarded damages to the plaintiff, with regard to the question of negligence, on the ground that either the defendant allowed the carborundum wheel to slip, in which case he would be liable, or that, assuming that the patient caused the accident by swallowing while the wheel was being used, the defendant ought to have warned her not to do so, or requested her to notify him before doing so unless he could control her tongue in any case with the mirror. The accident, it may be observed, is one to which any dentist might at some time or other be liable, and the judge said expressly, in giving judgment, that although the evidence constrained him to find that there was "negligence," it implied nothing against the defendant's professional skill, or that there was more than a momentary lapse from caution on his part. Dr. Hugh Woods has since written, as secretary of the London and Counties Medical Protection Society, to point out, with justice, that extreme rarity in the occurrence of an accident is no proof that when it does occur it was the result of negligence.

A point of some interest with regard to medical witnesses was raised, however, in the course of the case by Sir Herbert Waterhouse, who was called on behalf of the plaintiffs, having been consulted by Mrs. Leuw four days after the accident took place. Sir Herbert Waterhouse explained to the judge that he had been summoned to give evidence under a subpœna, and submitted that in the circumstances he had the right to restrict his evidence to facts observed by him and to refuse to answer any questions intended to elicit from him an expert opinion as to the treatment of the plaintiff by the defendant. The judge expressed his appreciation of the point raised, but it is to be observed from the report of his evidence that Sir Herbert Waterhouse did, in fact, express certain opinions as to the probable nature of the wound and as to what was said to have been done to arrest the hæmorrhage. The question suggested would appear to be, "Can a witness, a medical man who has observed certain conditions in a patient and has been subpœnaed to attend at a trial and to give evidence with regard to them, be compelled further to express opinions as an expert upon matters not within his actual experience affecting his patient's condition?" In other words, in a case such as the one under discussion, having entered the witness-box in obedience to a subpœna, can he be obliged to criticise the treatment given by another practitioner? He might, no doubt, be very glad to refuse, and it would be convenient if it were recognised by the court that he was at liberty to do so. We doubt, however, whether the witness in the circumstances indicated can do more than Sir Herbert Waterhouse did—namely, protest, leaving the judge to make any comment that the occasion, in his lordship's opinion, may demand. We do not find any precedent for a witness on subpœna being regarded as distinct from other witnesses. The question whether a witness is one who can rightly be asked to express an opinion is always one for the judge. A witness in the position in which Sir Herbert Waterhouse was placed can explain, if he feels that he ought to do so, that he has not had such an opportunity to become acquainted with the facts as would qualify him to express an authoritative opinion upon them. The judge would, no doubt, give weight to an objection so raised; but we doubt if such a witness can have any right or privilege of refusing his evidence at his own option. It may, however, be pointed out that the occasion is not likely often to arise. With expert witnesses of other kinds it is likely to do so very seldom. With them and with medical men an obvious observation would apply. Expert witnesses are called to support the side which calls them, and are usually prepared to do so, having carefully studied the facts which others will prove. Counsel do not ask questions, particularly of their own witnesses, by whose answers they are bound, unless they are pretty sure of the nature of the answer that will follow. A prudent man, to use an advocate's phrase, does not fire off his gun unless he knows how it is loaded. Consequently, a medical practitioner who has kept strictly to himself his opinions on a given subject is not likely to be asked for them in the witness-box or to be pressed to give them if he shows himself reluctant in doing so. It must be remembered that we are here speaking of a witness who has attended unwillingly in obedience to a subpœna, and of his evidence in chief. In cross-examination he would be liable to be asked for opinions if it were believed that the replies would be favourable to the side putting the questions.

CONTROL OF VENEREAL DISEASE.

The Increase in Ophthalmia Neonatorum and its Significance.

THE significance of the increase in the notifications for ophthalmia neonatorum cannot be overlooked. In 1918 the total number of cases notified was 6532, in 1919 it was 8548. Taking the figures for successive quarters of the year 1919—namely, first quarter 1413, second 2036, third 2353, fourth 2746—we note a steady increase during the year. We may well ask whether maternal gonorrhœa has increased in this proportion. It would be enlightening to discover how many of these mothers were under treatment for gonorrhœa before the birth of their children and whether they were known to be infected or not. When these facts are known, it still remains to inquire if the simple precautions necessary to safeguard the infant's eyes at the time of birth were taken, and if not why not.

The Manchester Early Treatment Centre.

The report of Dr. W. A. Young, assistant M.O.H. for Manchester, on the result of the first three months' work of the Venereal Disease Early Treatment Centre for males in that city is of considerable interest. During that period 1016 attendances were registered, 708 persons received treatment and 117 were referred to different clinics in the city. At first, treatment was given to every individual who applied for it within two days after exposure to risk, but those applying late were warned that treatment could not be relied upon to prevent, after so long a period had elapsed. From Jan. 5th onwards no treatment was administered when more than 24 hours had elapsed from the risk of infection. Later it was laid down that no treatment would be given after an interval of 12 hours. One point already brought out is this: there seems no reason for believing that individuals have, to any marked extent, been instigated to take fresh risks, inasmuch as there have only been two instances of habitual frequenters of the centre. We hope that the Ministry of Health will consent to the request for this centre to continue its work, and will give the desired permission for another to be opened. The cost per head has worked out at 2*s*. 0½*d*. Truly this is a small sum when it is realised what the average patient suffering from venereal disease costs the community through loss of work, apart from maintenance in hospitals, asylums, or infirmaries. We reiterate our plea for the establishment of a similar experimental early treatment centre in London.

Report for 1919 on the Treatment of Venereal Diseases in Birmingham.

A report prepared by Dr. J. Robertson, M.O.H. for Birmingham, shows a considerable increase during the year 1919 in the number of venereal cases coming for treatment. It is difficult to say whether the maximum has now been reached, but there is some suggestion that it was reached during the third quarter. As regards gonorrhœa, there were during the year 1399 new male cases and 187 female cases, as compared with 685 and 118 during 1918. The total number of attendances were 11,925 for males and 1531 for females. For syphilis the new cases were 782 males and 459 females, as compared with 603 and 41 for 1918. The total attendances were 10,433 for males and 6881 for females; 8373 doses of salvarsan substitutes were given. The figures for gonorrhœa suggest that the number of cases coming for treatment are not as numerous as they should be, especially in the cases of females. An unsatisfactory feature is that nearly one-half the patients cease attendance before the completion of treatment. The present facilities provided are: (*a*) for males, five clinics weekly, staffed by nine medical officers at the General Hospital, and two evening clinics at the Skin and Urinary Hospital, staffed by two medical officers. In addition, attendances are made at other times for injections and irrigations. A whole-time orderly is present at each centre. (*b*) For females, the General Hospital provides three clinics weekly, staffed by two medical officers, the Skin and Urinary Hospital provides one evening clinic, and the Women's Hospital one clinic. During the year 1300 enamelled iron notices have been fixed in factories and other places detailing the facilities offered. The total cost of the venereal diseases scheme during 1919, including the expenses of clinics, pathological laboratories, and publicity, amounted to £8573.

Continuous Mercurial Treatment.

The *Bulletin de la Société Française de Dermatologie et de Syphiligraphie*, No. 2 (1920), publishes a communication by Dr. Ch. Abadie on the Action of Uninterrupted and Prolonged Mercurial Injections in the Treatment of Certain Manifestations of Syphilis. Dr. Abadie recommends the employment of intravenous injections of cyanide of mercury in doses of a centigramme three times a week. He insists on the importance of continuing this treatment without interruption over a period of three to six months. Whatever may be the theoretical arguments in favour of allowing periods of rest, Dr. Abadie considers that in actual practice better results are obtained by carrying on continuous treatment. The cases under his care have been mainly cases of ocular syphilis, such as chorio-retinitis. In many apparently hopeless cases marked improvement resulted from the adoption of prolonged and uninterrupted treatment with cyanide of mercury. He recommends the employment of this method in other rebellious forms of syphilis, such as leucoplakia, cardiac syphilis, and the dystrophies and spastic paralysis of childhood.

Expert Examination in Law Suits.

In view of the greatly increased attention which is being devoted to the medical and sociological aspects of venereal disease it is reasonable to imagine that the question of infection will be much more prominently brought forward in the divorce and other courts than has hitherto been the case. This would be so even if legislation remained as it is at present, but, in view of the new legal measures which are sure to be brought into force by the pressure of public opinion, the definite diagnosis of venereal disease will become of even greater evidential value. We would here call attention to a position which, unless it is largely modified, will tend seriously to interfere with the course of justice. Imagine the case of a man or woman seeking judicial assistance, whether it be for divorce, separation, or other form of redress, on the plea that his or her partner is suffering from venereal disease. As matters are at present the defendant might bring evidence from two or three medical men to the effect that he or she had been examined by them and found to be free from the disease in question. The signatories to this evidence need not necessarily be venerologists, and even if they were there is no certitude that the examination upon which their evidence is based would necessarily be of the most searching nature. Owing, therefore, to inefficient examination a serious miscarriage of justice might ensue. We hold that in the interest of the community the court should be able to order all such cases to be examined by a venerologist selected for the purpose. Should the present arrangement continue the ends of justice will necessarily be frustrated.

Royal Free Hospital Post-graduate Course.

A course has been arranged by the London (Royal Free Hospital) School of Medicine for Women, the Royal Free Hospital, the Elizabeth Garrett Anderson Hospital, and the London Lock Hospital for the instruction of qualified medical women in the treatment of venereal diseases. The course will begin on Monday, May 17th, at 5 P.M., and conclude on Saturday, May 29th. The course will include out-patient clinics for women and children by Dr. Margaret Rorke, Dr. Naomi Tribe, Mr. J. E. Lane, and Mr. J. J. Abraham; demonstrations by Mr. Charles Gibbs and Dr. Elizabeth Lepper; visits to maternity wards and labour department under Dr. Morna Rawlins; and lectures by Mr. Lane and Mr. J. E. R. McDonagh. Qualified medical women should send in their names to Miss Louie M. Brooks, warden and secretary of the Medical School. Fee for the whole course, £5 5s. The library, refectory, and common rooms at the Medical School are available for use by the post-graduate students attending the course. The course will be repeated during the second fortnight of September.

"How Not to Do It."

In a pamphlet on "Venereal Diseases and their Treatment—How Not to Do It," just issued by the National Association of Medical Herbalists of Great Britain, an outline is given of the "orthodox treatment of venereal diseases," which is stated to nullify "the claim of the regular profession to any special knowledge of their origin and nature, or to any infallible remedy for their cure." The conclusion is drawn that "the Government are not justified in subsidising the arsenical and mercurial remedies which are favoured for the time being by the regular profession, and still less are they justified in seeking to suppress all unorthodox methods of treatment."

SCOTLAND.

(FROM OUR OWN CORRESPONDENT.)

General Nursing Council for Scotland.

THE appointment of the members of the General Nursing Council for Scotland, established by the Nurses Registration (Scotland) Act, 1919, has now been completed. The general composition of this Council was described in your issue of Jan. 24th (p. 226). The following is a list of the members of the Council:—

Appointed by the Privy Council: Captain Charles B. Balfour, C.B., Lord Lieutenant of the County of Berwick.

Appointed by the Scottish Education Department: Miss Norah Milnes, B.Sc., Director of the School of Social Study and Training, Edinburgh University.

Appointed by the Scottish Board of Health: Dr. A. K. Chalmers, Medical Officer of Health, Glasgow; Dr. Katherine Clark, Assistant Medical Officer to the Edinburgh Education Authority; Dr. H. E. Fraser, Medical Superintendent, Royal Infirmary, Dundee; Colonel D. J. Mackintosh, C.B., M.V.O., Superintendent, Western Infirmary, Glasgow; Miss Margaret Bell, Queen's Nurse, Musselburgh; Miss Kathleen L. Burleigh, Matron, Royal Hospital for Sick Children, Edinburgh; Miss Annie Gill, R.R.C., Lady Superintendent of Nurses, Royal Infirmary, Edinburgh; Miss Mary Hunter, Public Health Department, Glasgow; Miss Elizabeth T. Jones, School Nurse, Edinburgh Education Authority; Miss Janet Melrose, R.R.C., Matron, Royal Infirmary, Glasgow; Miss Florence A. Merchant, Matron, Stobhill Hospital, Glasgow; Mr. T. Prentice, Mental Hospital, Hartwood, Lanarkshire; Miss Margaret R. Stewart, Secretary and Treasurer, Scottish Nurses' Club.

Arrangements will be made by the Scottish Board of Health for convening the first meeting of the Council at an early date.

University of Glasgow: Faulds Fellowships.

Under the bequest of the late William Brechin Faulds, writer in Glasgow, four Faulds Fellowships have been instituted in the Faculties of Arts, Medicine, Divinity, and Law respectively. Each Fellowship is tenable for three years, subject to the fulfilment of the prescribed conditions. The stipend of each Fellow in any year will be one-fourth of the net annual income of the trust fund for the preceding year, and the Fellowship will be awarded by the Senatus, on the recommendation of the Faculty concerned, and will not be tenable along with any other graduate Fellowship or Scholarship. Candidates in Medicine must be men who have within the three academical years immediately preceding the award completed the medical curriculum by passing the Final Professional Examination required for graduation, and taken the degrees of M.B., Ch.B. The applications of candidates in each Faculty will be considered by that Faculty, who will take into account the candidates' general academic record, the evidence of their capacity for advanced study, inquiry, or research, and the results of any independent work, published or unpublished, which they may have undertaken, arranging for such trial and oral or practical examination as may be deemed necessary for their decision. During the tenure of his Fellowship the Fellow must devote himself to some branch of advanced study, inquiry, or research recommended by his Faculty and approved by the

Senatus, and arrangements are provided for report to the Faculty on his progress.

The Glasgow Post-graduate Medical Association.

At a recent joint meeting of the Faculty of Medicine of the University of Glasgow and the General Committee for Post-graduate Teaching, a comprehensive scheme for permanent post-graduate medical teaching in Glasgow was adopted. The joint committee recommend the formation of a central organisation, to be known as the Glasgow Post-graduate Medical Association, for arranging, coördinating, and administering the teaching in Glasgow and the West of Scotland. The Board of the Association is to consist of representatives of those teaching institutions which grant facilities for post-graduate teaching, and of the teachers themselves. The joint committee also issue certain suggestions for the organisation of the courses. These are to include "refresher" courses of four to six weeks' duration for the general practitioner, to be held twice a year; weekly demonstrations for the benefit of local practitioners; and advanced and comprehensive full-time courses of six months' duration, leading to a diploma, on subjects such as obstetrics and child welfare, school medical inspection, hygiene, tuberculosis, and venereal diseases. It is emphasised that the future development of the scheme depends largely on financial considerations and the possibility of obtaining some assistance from the Government.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Hunger Strike in Mountjoy Prison.

THE hunger strike of some 89 prisoners in Mountjoy Prison, Dublin, last week, in order to obtain recognition of status as political prisoners, placed the medical officers of the prison in as difficult a position as any in which a medical man can find himself. To have the care of so many men gradually losing their hold on life and to be able to do next to nothing to prevent it—for forcible feeding is no longer permitted—is very trying for a humane member of our profession. The final decision of the Government to release any prisoners who, in the opinion of the medical officers of the prison, were in danger of death, came in time to prevent any calamity. It is not surprising to learn that prior to this one medical officer felt himself compelled to resign his post, and the health of the other was so injured by the strain that he was subsequently rendered unfit for duty. The humanity of the medical officers was recognised by the friends of the prisoners, many of whom mentioned it specially in conversations which have since been published.

Ulster Medical Society.

At the ninth meeting of session 1919–20 of the Ulster Medical Society, held on April 16th in the Belfast Medical Institute, Mr. A. Fullerton being in the chair, Dr. H. F. Lechmere Taylor (Edinburgh) and Dr. E. Montgomery (Belfast) gave an account of medical work in India. The main features in connexion with the hospital which they described were the infrequency of appendicitis and malignant disease, as well as of abdominal tumours; and the frequency of stone, malaria, and cataract.

The Water-supply of Belfast.

The water in store on April 8th was (as reported at the fortnightly meeting of the Belfast Water Commissioners held on April 16th) 2770 million gallons, while on the same date in 1919 it was 2787 million gallons. The estimated population at present being supplied was 443,492, and the daily consumption averaged 17,610,000 gallons, which equalled 39·69 gallons per head of the population, a larger amount than formerly—that is, since the war. The matter is one, of course, of urgent medical interest to us in Belfast.

The Queen's University of Belfast.

At a meeting of the Senate of the Queen's University of Belfast held on April 15th it was announced that Mr. F. A. Heron, of Maryfield, near Belfast, proposes to give the University a gift of £5000, to be applied exclusively for the teaching of physical chemistry. The Vice-Chancellor having spoken of the great need of further equipment in the faculties of medicine and science, Lady Pirrie, in supporting him, said the Royal Victoria Hospital and the University were complementary to each other in their work, and she hoped the Vice-Chancellor would assist in getting further subscriptions for the hospital to meet its ever-increasing needs.

Poor-law Doctors' Salaries.

On April 17th a joint application was presented to the Omagh board of guardians for an increase of salary on the part of the medical Poor-law officers of Cavan, Donegal, Fermanagh, Monaghan, and Tyrone. The application urged that the salaries of dispensary doctors should be fixed at £300 per annum, rising annually by £5 to £400, with £50 yearly as medical officer of health; that the salaries of workhouse medical officers should be £200 yearly, rising annually by £5 to reach £300; that locum-tenents be appointed at £7 7*s.* weekly for dispensary districts, and £5 5*s.* for workhouse hospitals, or, where both duties are combined, that the payment should be £10 10*s.* a week; and that one month's leave be granted to medical officers annually. There was prolonged silence, I understand, after the above application was read, a member of the Omagh board of guardians remarking "that it had struck the members speechless." The board adjourned the question indefinitely, a member stating that the farmers would be bankrupt "if this goes on." It is generally believed that no people in Ireland have, since the beginning of the war, done better than the farmers.

April 19th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

New Regulations for the Sale of Poisons.

THE increase in drug-taking and the abuse of hypnotics have led to more stringent laws controlling the sale of these substances. The law of July 12th, 1916, and the decree of Sept. 14th, 1916, have forbidden the chemist to sell to the same person a quantity to last more than seven days of any poisonous substance named on the official list. After this time the patient has to present a new prescription. The chemist who renews an old prescription lays himself open to a fine of 1000 to 10,000 francs, to a term of imprisonment from three months to two years, and to the erasion of his name from the register. Also, prescriptions ordering quantities of poisons for more than 20 days of treatment have to be refused. These rules are obviously inspired by the desire to combat the illicit traffic in opium, morphia, and cocaine, but they are also applicable to other poisons on the official list, including, for example, mercurial salts. Now these are used for prolonged treatment in cases where it is impossible to ask the patient to return every week to his doctor or hospital for a new prescription. Such cases include women who have been ordered perchloride douches for vaginal discharges, and syphilitics who are being treated by mercury in the form of pills, taken twice daily in series of 40, with monthly and later two-monthly remissions, for three or four years. This method of treatment still has many adherents among those suspicious of the uncertain action of arsenobenzol and of the special conditions of its administration. The Société Médicale de l'Est, following a most careful report by M. Perrin, points out that the difficulties thus introduced by the law will encourage still further the tendency of the syphilitic to neglect his treatment, and will hinder the fight against venereal diseases. This society has decided to press for the modification of the law on this point.

The Effects of the Paper Crisis.

The paper crisis may lead to the suspension of the medical periodicals, already sorely tried by the printers' strike last month. The difficulty cannot be overcome by raising the price to subscribers and the tariff of advertisements. Scarcity and high price of paper are also impeding the publication of books, and in this way menacing scientific progress. Among the remedies proposed one is the suppression of the thesis required for obtaining the degree of doctor of medicine. This formality dates back four centuries at least. At first the thesis was only a big sheet of paper surrounded by symbolic engravings, on which a candidate had printed the various propositions he wished to submit to his judges. Little by little the thesis became a scientific memorandum on a subject chosen by the candidate and on which he was prepared to defend his conclusions. The number of copies that had to be furnished steadily rose. Every university library in France required one to enrich its collection, and foreign universities followed offering theses of their own in exchange. The hundred copies of the theses now obligatory, at the present cost of paper and printing, makes a heavy tax on the resources of the young student. It is proposed, therefore, to suppress this formality. Those in favour of abolition point out that the majority of theses are valueless compilations made with the help of fellow students. A candidate who has the money may even buy a ready made thesis from some impecunious but better informed comrade. The few communications of real value might be brought to notice at learned societies or by publication in the journals. Instead of the prizes given every year for the best theses, consisting in medals and possibly the remission of some of the high examination fees, it is suggested that the same result could be obtained by offering a substantial reward for valuable articles published, a procedure which would also ensure the interests of scientific progress. For the immense majority of candidates who have no ambition beyond becoming general practitioners the heavy pecuniary burden of the thesis has no compensation, while their diligent but mediocre screeds encumber the shelves of the professors who are entitled to receive reprints—until they are sold by the housekeepers as waste paper. Besides this there are the essays puffing proprietary articles of which the manufacturer pays the cost of production, or those by which the young doctor seeks to establish himself in practice. The time is opportune to make a clean sweep of this mediæval custom.

Living Micro Organisms in Papyrus and Amber.

In a recent remarkable communication to the Academy of Medicine, Dr. Galippe announced his discovery in an Egyptian papyrus of microscopical organisms capable of motion and reproduction. These microbes were contained in the very fibres of vegetable matter which served in the manufacture of the papyrus. More recent researches by the same observer carry us back still further. This time the centre of interest is the fossil resin, popularly known as amber, to be found thinly distributed in cretaceous strata. The period of its formation is so remote that competent geologists hesitate to give a precise date even in millennia. But in spite of this, the resin was found to contain living atoms contemporaneous with its formation. By special processes Dr. Galippe convinced himself of his ability to reawaken them, like the sleeping princess of the fairy story, from their long slumber. They then showed active movements and power to reproduce themselves. This quasi indestructibility of the infinitely small, its resistance to the action of time and of physical and chemical agents, is a biological property of fascinating interest—but its existence is challenged.

April 19th.

THE NURSES' COOPERATION.—This organisation, which has for its main object the securing of full remuneration to nurses for their work, shows by its annual report for 1919 a successful year of operation. The fees received by the nurses have exceeded those earned in any previous year—namely, £61,059, or £3774 more than last year. Beginning in 1891 with a staff of 30 nurses, the coöperation has now 442 fully trained nurses on the general staff and 36 asylum trained nurses for mental patients. The total number of cases nursed in 1919 was 6169, or 114 more than in the previous year. The address of the coöperation is 22, Langham street, Portland place, London.

URBAN VITAL STATISTICS

(Week ended April 17th, 1920.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 18 million persons, the annual rate of mortality which had been 18·7, 16·7, and 16·6 in the three preceding weeks, further declined to 15·8 per 1000. In London with a population of nearly 4¼ million persons, the annual death rate was 16·1, or 1·5 per 1000 below that recorded in the previous week, while among the remaining towns the rates ranged from 5·4 in Enfield, 7·2 in Oxford, and 8·0 in Reading, to 25·2 in Blackburn, 26·5 in Sunderland, and 32·4 in Tynemouth. The principal epidemic diseases caused 411 deaths, which corresponded to an annual rate of 1·2 per 1000, and included 185 from measles, 102 from whooping cough, 53 from infantile diarrhœa, 51 from diphtheria, 15 from scarlet fever, 3 from enteric fever, and 2 from small pox. Measles caused a death rate of 2·0 in Bootle, 2·1 in Wakefield, 2·4 in Brighton and 4·8 in Newport (Mon.). The fatal cases of small pox belonged to West Ham and Liverpool respectively. The deaths from influenza, which had been 392, 379, and 332 in the three preceding weeks further declined to 306, and included 101 in London, 22 in Birmingham, 12 each in Manchester and West Ham, and 10 in Blackburn. There were 1960 cases of diphtheria, 1902 of scarlet fever, and 24 of small pox under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 1995, 2011, and 26 respectively at the end of the previous week. The causes of 42 of the 5379 deaths in the 96 towns were uncertified, of which 6 were registered in Birmingham, 5 in Liverpool, and 4 each in St. Helens and Manchester.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2¼ million persons the annual rate of mortality, which had been 18·0, 17·2, and 17·3 in the three preceding weeks, rose to 18·9 per 1000. The 414 deaths in Glasgow corresponded to an annual rate of 19·4 per 1000, and included 29 from influenza, 25 from measles, 5 from diphtheria, 2 each from enteric fever, scarlet fever and whooping cough, and 1 from infantile diarrhœa. The 108 deaths in Edinburgh were equal to a rate of 16·5 per 1000 and included 8 from influenza and 1 each from measles and diphtheria.

Irish Towns.—The 251 deaths in Dublin corresponded to an annual rate of 31·5, or 4·7 per 1000 above that recorded in the previous week, and included 16 from whooping cough, 15 from measles, 5 from influenza, 2 from infantile diarrhœa, and 1 each from scarlet fever and diphtheria. The 229 deaths in Belfast were equal to a rate of 28·9 per 1000, and included 17 from influenza, 6 from whooping cough, 5 from measles, 2 from infantile diarrhœa, and 1 from scarlet fever.

VITAL STATISTICS OF LONDON DURING MARCH, 1920

IN the accompanying table will be found summarised statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious disease, it appears that the number of persons reported to be suffering from one or other of the ten diseases notified in the table was equal to an annual rate of 7·1 per 1000 of the population, estimated at 4,358,309 persons; in the three preceding months the rates had been 9·9, 8·5, and 7·7 per 1000. Among the metropolitan boroughs the lowest rates from these diseases were recorded in Hammersmith, the City of Westminster, St. Marylebone, Hampstead, Islington, Stepney, and Bermondsey; and the highest in Fulham, Finsbury, Bethnal Green, Battersea, Deptford, and Lewisham. Eleven cases of small pox were notified during the five weeks ended April 3rd; of these, 8 belonged to Poplar, 2 to Stepney, and 1 to Woolwich. The prevalence of scarlet fever was 12 per cent. less than in February; this disease was proportionally most prevalent in Chelsea, Holborn, Finsbury, Bethnal Green, Poplar, Deptford, and Lewisham. The Metropolitan Asylums Hospitals contained 1981 scarlet fever patients at the end of the month, against 2841, 2476, and 2266 at the end of the three preceding months; the weekly admissions averaged 240, against 350, 280, and 279 in the three preceding months. Diphtheria was slightly less prevalent than in the preceding month; this disease was proportionally most prevalent in Fulham, St. Pancras, Hackney, the City of London, Shoreditch, Bethnal Green, and Woolwich. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 1845, 1971 and 2003 at the end of the three preceding months, numbered 1964 at the end of March; the weekly admissions averaged 260, against 239, 263, and 240 in the three preceding months. The prevalence of enteric fever was about equal to that in the two preceding months; of the 59 cases notified during the month 7 belonged to Fulham, 7 to St. Marylebone, 7 to Hampstead, 5 to Deptford, 4 to Paddington, 4 to

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING MARCH, 1920.

(*Specially compiled for* THE LANCET.)

CITIES AND BOROUGHS.	Estimated civil population, 1919.	Notified Cases of Infectious Disease.												Deaths from Principal Infectious Diseases.									Deaths from all causes.	Death-rate per 1000 living.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.		
LONDON	4,358,309	11	1285	1307	—	59	2	45	254	22	2	2987	7·1	2	295	24	137	181	3	74	716	1·7	7350	17·6
West Districts:																								
Paddington	143,938	—	28	55	—	4	—	2	13	—	—	102	7·4	—	2	1	1	1	—	5	10	0·7	201	14·6
Kensington	157,886	—	46	48	—	4	—	1	9	—	—	108	7·1	—	2	1	3	2	1	4	13	0·9	239	15·8
Hammersmith ...	130,981	—	13	30	—	—	—	3	3	—	1	50	4·0	—	3	—	3	4	—	—	10	0·8	185	14·7
Fulham	152,543	—	47	74	—	7	—	5	13	—	—	146	10·0	—	7	—	6	4	1	1	19	1·3	213	14·6
Chelsea	60,573	—	26	5	—	2	1	2	2	1	—	39	6·7	—	1	—	2	—	—	1	4	0·7	96	16·5
CityofWestminst'r	127,533	—	35	17	—	2	—	—	7	—	—	61	5·0	—	3	—	1	1	1	—	6	0·5	208	17·0
North Districts:																								
St. Marylebone ...	97,953	—	34	8	—	7	—	—	6	1	—	56	6·0	—	1	—	—	4	—	4	9	1·0	157	16·7
Hampstead	88,012	—	11	16	—	7	—	—	1	—	—	35	4·1	—	1	1	—	1	—	—	3	0·4	107	12·7
St. Pancras	219,434	—	59	69	—	1	—	2	15	—	—	146	6·9	—	16	1	3	21	—	5	46	2·2	378	18·0
Islington	323,034	—	73	83	—	2	—	3	20	3	—	184	5·9	—	36	1	11	20	—	1	69	2·2	601	19·4
Stoke Newington...	50,954	—	9	18	—	—	—	—	5	—	—	32	6·5	—	3	—	2	5	—	—	10	2·0	97	19·9
Hackney	216,736	—	42	87	—	—	—	5	12	4	—	150	7·2	—	32	1	14	16	—	1	64	3·1	451	21·7
Central Districts:																								
Holborn	38,156	—	17	7	—	1	—	—	2	—	—	27	7·4	—	2	—	1	—	—	—	3	0·8	67	18·3
Finsbury...	75,291	—	30	18	—	—	—	—	18	—	—	66	9·1	—	3	—	6	2	—	—	11	1·5	148	20·5
City of London ...	13,893	—	1	7	—	—	—	—	1	—	—	9	6·8	—	—	—	—	—	—	—	—	—	23	17·3
East Districts:																								
Shoreditch	98,134	—	27	39	—	—	—	2	6	—	—	74	7·9	—	8	2	4	3	—	6	23	2·4	201	21·4
Bethnal Green ...	110,085	—	52	54	—	—	—	—	4	—	—	110	10·4	—	24	2	5	18	—	7	56	5·3	271	25·7
Stepney	232,506	2	58	59	—	2	—	2	10	1	—	134	6·0	—	14	2	6	16	—	2	40	1·8	521	23·4
Poplar	153,644	8	61	34	—	—	—	2	7	1	—	113	7·7	2	12	—	6	15	—	1	36	2·4	337	22·9
South Districts:																								
Southwark	179,971	—	42	53	—	2	—	3	17	1	—	118	6·8	—	21	—	9	4	—	2	36	2·1	346	20·0
Bermondsey	124,239	—	26	10	—	—	—	—	2	—	—	38	3·2	—	17	2	1	6	—	3	29	2·4	247	20·7
Lambeth...	282,322	—	101	70	—	2	—	2	16	1	—	102	7·1	—	20	2	13	9	—	8	52	1·9	511	18·9
Battersea	159,316	—	59	54	—	4	—	3	12	2	1	135	8·8	—	3	1	7	7	—	2	20	1·3	253	16·6
Wandsworth... ...	333,693	—	128	110	—	3	—	4	17	3	—	265	8·3	—	20	1	7	2	—	4	34	1·1	393	12·3
Camberwell	273,802	—	59	105	—	2	1	3	12	1	—	183	7·0	—	21	3	10	6	—	9	49	1·9	393	15·0
Deptford...	111,205	—	53	24	—	5	—	1	7	—	—	90	8·4	—	4	—	4	3	—	5	16	1·5	163	15·3
Greenwich	98,484	—	37	32	—	1	—	—	6	—	—	76	8·0	—	8	1	2	7	—	1	19	2·0	166	17·6
Lewisham	167,754	—	74	57	—	1	—	—	7	2	—	141	8·8	—	3	1	6	3	—	1	14	0·9	206	12·8
Woolwich	136,237	1	37	64	—	—	—	—	4	1	—	107	8·2	—	8	1	4	1	—	1	15	1·1	171	13·1
Port of London ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

Kensington, and 4 to Battersea. There were 38 cases of enteric fever under treatment in the metropolitan asylums at the end of the month, against 25, 25, and 30 at the end of the three preceding months; the weekly admissions averaged 6, against 2, 4, and 6 in the three preceding months. Erysipelas was proportionally most prevalent in Paddington, Fulham, Stoke Newington, Finsbury, Southwark, and Battersea. The 45 cases of puerperal fever included 5 in Fulham, 5 in Hackney, 4 in Wandsworth, and 3 each in Hammersmith, Islington, Southwark, Battersea, and Camberwell. The 22 cases of cerebro-spinal meningitis included 4 in Hackney, 3 in Islington, 3 in Wandsworth, 2 in Battersea, and 2 in Lewisham; while the 2 cases of poliomyelitis belonged respectively to Hammersmith and Battersea.

The mortality statistics in the table relate to the deaths of civilians actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the five weeks ended April 3rd the deaths of 7350 London residents were registered, equal to an annual rate of 17·6 per 1000; in the three preceding months the rates had been 13·1, 14·6, and 16·6 per 1000. The death-rates ranged last month from 12·3 in Wandsworth, 12·7 in Hampstead, 12·8 in Lewisham, 13·1 in Woolwich, 14·6 in Paddington, 14·6 in Fulham, and 14·7 in Hammersmith, to 20·5 in Finsbury, 20·7 in Bermondsey, 21·4 in Shoreditch, 21·7 in Hackney, 22·9 in Poplar, 23·4 in Stepney, and 25·7 in Bethnal Green. The 7350 deaths from all causes included 716, which were referred to the principal infectious diseases; of these, 2 resulted from small-pox, 295 from measles, 24 from scarlet fever, 137 from diphtheria, 181 from whooping-cough, 3 from enteric fever, and 74 from diarrhœa and enteritis among children under 2 years of age. No death from any of these diseases was recorded last month in the City of London. Among the metropolitan boroughs the lowest death-rates from these diseases were recorded in Paddington, Hammersmith, Chelsea, the City of Westminster, Hampstead, and Holborn; and the highest in Hackney, Shoreditch, Bethnal Green, Poplar, and Bermondsey. The 2 fatal cases of small-pox belonged to Poplar. The 295 deaths from measles were 9 fewer than the average number in the corresponding period of the five preceding years; this disease was proportionally most fatal in Islington, Hackney, Bethnal Green, Southwark, and Bermondsey. The 24 fatal cases of scarlet fever exceeded the average by 6, and included 3 in Camberwell and 2 each in Shoreditch, Bethnal Green, Stepney, Bermondsey, and Lambeth. The 137 deaths from diphtheria were nearly double the average; the greatest proportional mortality from this disease occurred in Hackney, Finsbury, Bethnal Green, Southwark, Lambeth, and Battersea. The 181 fatal cases of whooping-cough were 22 in excess of the average; this disease was proportionally most fatal in St. Pancras, Stoke Newington, Hackney, Bethnal Green, Stepney, Poplar, and Greenwich. Three deaths from enteric fever were registered during the month, against an average of 8; these deaths belonged respectively to Kensington, Fulham, and the City of Westminster. The 74 fatal cases of infantile diarrhœa were 3 below the average; the greatest proportional mortality from this disease occurred in Paddington, St. Marylebone, Shoreditch, Bethnal Green, Camberwell, and Deptford. In conclusion, it may be stated that the aggregate mortality in London during March from these principal infectious diseases was 12 per cent. above the average in the corresponding period of the five preceding years.

DINNER OF THE HARROGATE MEDICAL SOCIETY.—The annual dinner of the Harrogate Medical Society, the first held since the war, took place at the Prospect Hotel, Harrogate, on April 15th, about 70 medical men being present. Dr. W. Bertram Watson, President of the Society, was in the chair, and the guests included Sir Berkeley Moynihan, Dr. Bedford Pierce (President of the British Medico-Psychological Association), Dr. W. H. Willcox, and the Mayor of Harrogate (Alderman J. Shepherd). Sir Berkeley Moynihan referred to the proposed Institute for Investigation, somewhat on the lines of Duff House, where patients exhibiting early errors of metabolism would find at their disposal the best available pathologist, radiographer, and biochemist. He hoped the scheme would shortly materialise, since team-work was essential to-day, and Harrogate was extraordinarily fortunate in opportunities for research. The President briefly replied, and speeches by Mr. Herbert Frankling, Dr. Pierce, Dr. Willcox, and Dr. David Brown concluded a pleasant evening.

Correspondence.

"Audi alteram partem."

TREATMENT OF BILHARZIA DISEASE.

To the Editor of THE LANCET.

SIR,—May I add one or two remarks to the admirable annotation in your issue of April 17th of Dr. F. G. Cawston's paper on the treatment of 30 cases of bilharzia disease with tartar emetic. Dr. Cawston records two cases in which cough followed the injection of the drug, and although he does not expressly say so I gather that he regarded this phenomenon as an unusual one. In my experience the occurrence of a short bout of coughing coming on towards the completion of the injection is an almost invariable phenomenon. In Dr. Cawston's Case 5 he seems to suggest that the antimony injections were the cause *of a chronic cough persisting for a fortnight and aggravated* by each injection. I can hardly think the persistence of the cough can be ascribed to the antimony, and it would have been extremely interesting if Dr. Cawston had recorded the results of a careful examination of the chest during this period.

With regard to a rise of temperature, with possibly a rigor as a result of tartar emetic injections, my experience coincides with Dr. Cawston's in regarding such occurrences as rare in the treatment of bilharzia disease. In trypanosomiasis, however, marked rise of temperature, together with rigor, is frequently noted as a result of injections of tartar emetic. This I regard, however, as due to a massive trypanolysis, rather than to the action of the drug, as later in the course of the disease, when parasites have become extremely scanty as a result of treatment, rigors or any marked rise of temperature are unusual.

In cases treated by intravenous injections of tartar emetic a marked rise of temperature and rigor may occasionally occur in a patient who has never exhibited this reaction in possibly numerous previous injections. Such a result, as you rightly point out, may be due to some impurity in the distilled water used for the injection. In my experience, where the freshness and purity of the distilled water could be guaranteed, a violent reaction might occasionally occur, and seemed to me to be due to the temperature of the injected solution being introduced at a temperature below blood heat. At any rate, that was the only cause I could assign, and after this was attended to such untoward and unusual effects were eliminated. I may say I always make a practice of administering the dose of tartar emetic in high dilution—i.e., in some four to six ounces of fluid.—I am, Sir, yours faithfully,

H. B. NEWHAM.

London School of Tropical Medicine, Endsleigh-gardens, N.W., April 18th, 1920.

WAR ŒDEMA AND EPIDEMIC DROPSY.

To the Editor of THE LANCET.

SIR,—It will be a pity if, as the outcome of Dr. A. D. Bigland's excellent article on Œdema as a Symptom in So-called Food-Deficiency Diseases in THE LANCET of Jan. 31st, a confusion should arise between famine dropsy and epidemic dropsy. The disease called by Macleod epidemic dropsy, with its itching, burning, and erythema or urticaria which preceded or accompanied the anasarca, was probably ankylostomiasis. This outbreak in Mauritius, described by Macleod, Davidson, and Chevers, and referred to later in Manson's and Daniels's works on tropical diseases, does not bear any real epidemiological resemblance to the famine dropsy so clearly differentiated by Cornish and Porter in the Indian famine of 1877–78. Giles, in his "Report on the Causes of the Diseases Known in Assam as Kala-azar and Beri-beri" (1890), showed these diseases, and, I think, Macleod's "epidemic dropsy," to be ankylostomiasis. Macleod himself directs attention to the relationship between the Mauritius and the Assam cases, and states definitely that "this dropsical disease was by no means confined to the impoverished and sickly." Simultaneously, however, in the Madras famine Cornish and Porter observed and first described clearly "famine dropsy" which, during the war, has been rediscovered under a variety of terms, including "war œdema" and "hunger œdema." Cornish had recognised the disease even earlier, in 1864, when he discussed prison dietaries and diseases. Cornish's references are as follow:—

1. A reply to Sir Richard Temple's minutes of March 7th and 14th, 1877, as to the sufficiency of a pound of grain as the basis of famine wages.
2. Digby: The Famine Campaign in Southern India. Longmans, vol. ii., p. 196, 1878.
3. Cornish: Madras Quarterly Journal of Medical Science, vol. viii., 1865: Observations on the Nature of the Food of the Inhabitants of Southern India and on Prison Dietaries in the Madras Presidency.

Cornish was sanitary commissioner for Madras during the famine of 1877–78. Porter was in charge of a famine relief camp at the same period. He published exact post-mortem findings in his book, "The Diseases of the Madras Famine of 1877–78," by Alexander Porter, M.D., F.R.C.S.I. (Madras Government Press, 1889).

I am, Sir, yours faithfully,

Bristol, April 16th, 1920. J. A. NIXON.

ANÆSTHETISTS' REMUNERATION.

To the Editor of THE LANCET.

SIR,—Since at the present time a greater degree of skill is being demanded on the part of anæsthetists than a few years ago, it is only fair that what then was an adequate remuneration should be correspondingly raised, apart from the question of the higher rate of living, the greater expense of apparatus, anæsthetic drugs, and locomotion. It is, however, necessary to educate the public, and to a lesser extent the general practitioner, to recognise the market value of the skilfully given anæsthetic. Surgeons can help anæsthetists by insisting that the patient should receive a note of fees from the anæsthetist himself, by telling the patient beforehand the amount of such fee, and by not accepting an inclusive fee as is so often done. In this way the anæsthetist would soon cease to be regarded merely as the appanage of the surgeon.

Some years ago in America I was informed that a skilful anæsthetist expected a fee corresponding to 25 per cent. of that of the surgeon. It is only within the last few years that a 10 per cent. ratio has come into force in this country. It does not seem a fair thing for a surgeon who is asked to reduce his fee, say, from 100 guineas to 50 guineas to expect his anæsthetist to reduce his from 10 guineas to 5 guineas, unless the ratio is considerably higher than at present; and I think very few surgeons would object to anæsthetists' fees being raised to a sum corresponding to 20 per cent. of that of the surgeon's fee with a minimum of 5 guineas. I am, Sir, yours faithfully,

HUGH R. PHILLIPS, M.D.

Cavendish-court, Cavendish-square, W., April 17th, 1920.

THE FEDERATION OF MEDICAL AND ALLIED SOCIETIES.

To the Editor of THE LANCET.

SIR,—Recent events have emphasised the urgent necessity of providing more adequate means for the collective expression of medical opinion in the councils of the nation, and, if public sympathy is not to be alienated from our cause, we must ensure that the means adopted are compatible with the dignity of our profession. The manifest unfairness of much of the public treatment meted out to us as a profession has largely, if not entirely, resulted from the failure of our various organisations to coöperate in giving expression to their views in the guidance of public opinion and in assisting to frame legislation on health matters. Whilst fully appreciating the great services many of these organisations have rendered, one has to recognise that they are only able to represent the views of their members and that coöperation would tend greatly to increase their value to the profession and to the community in general. Hitherto a few of the bodies have coöperated in times of emergency, but there has never been available a permanent conference table to which the public and the Government could turn for a united opinion on matters of national health.

This need for a central representative body, in which all branches of medical and allied practice can coöperate, has been met by the Federation of Medical and Allied Societies which has already secured the support of some 40 organisations, varying in influence from the Royal Society of Medicine to the smaller provincial medical societies, and in addition provides the coöperation of all the allied professions, as represented by the British Dental Association, the College of Nursing, Royal British Nurses' Association, Pharmaceutical Society of Great Britain, Incorporated Midwives' Institute, and other bodies. Each of these organisations has representation in the Federation in accordance with its membership and retains inviolate its individuality, freedom of action, and right to express its views separately or collectively as may seem expedient.

The Federation has already been privileged to render service in linking up existing bodies, and in voicing their demand for a public inquiry into the conditions of medical service under the Insurance Acts. Its utility is much increased by the fact that seven medical Members of Parliament have seats on its Council and, as its position becomes stronger, it will be able to render increasing assistance to medical candidates, irrespective of party, and thus materially help in increasing medical representation in the House of Commons.

The Council of the Federation is now able to give effect to one of the original terms of its reference by admitting as individual Associates members of the medical and dental professions. Circulars are being sent out inviting applications for such membership, at an inclusive subscription of half a guinea, and it is hoped that all medical men will contribute the small sum asked and take an active part in ensuring the permanent success of a movement which provides practical means for the collective expression of medical opinion in guiding legislation through the difficulties inseparable from the reconstruction of the health services of the country.

I am, Sir, yours faithfully,
N. HOWARD MUMMERY,
General Secretary, the Federation of Medical and Allied Societies.
5, Vere-street, Cavendish-square, London, W.1,
April 14th, 1920.

LIFE ASSURANCE AND GLYCOSURIA.

To the Editor of THE LANCET.

SIR,—I have read with interest the expected criticism of my article, and am glad to learn the valuable opinions of your correspondents. So long as assurance companies desire that no information should be given to the proposer in any case of the result of the medical examination, it is the duty of the medical officer to observe this rule, and I follow it myself in all cases. My remarks on this point referred to one class of cases only—glycosuria, often intermittent or temporary. In these cases, after the medical examination, the proposer is informed by the assurance company that he is rejected. If the reason is asked the reply is, "On account of sugar in the urine" (or urinary change). He may at once conclude he is suffering from severe diabetes and be greatly shocked, or he may be angry and, feeling no disability, take no further heed to his condition; but usually he consults his medical attendant (and this will be at least a few days after the examination), and when the urine is again tested it may be quite free from sugar. And here the trouble arises. The proposer concludes that a mistake must have been made at one of the examinations. He consults other medical men, who may also find the urine quite normal, and he concludes he has been unfairly treated and disputes occur. Having been often requested to help to settle such disputes, it still appears to me desirable that some other course of procedure should be followed than that usually adopted.

In my article the various tests for glucose were not the subject of consideration. I spoke of Fehling's solution or some of its modifications. Many of the modifications are much superior to Fehling's solution (Benedict's is one of them) and are preferable. The phenyl-hydrazin test and the fermentation test are of much service, since negative results would show that the reducing substance in the urine was not glucose; but many other tests would be required to determine what the reducing body was; and, of course, if these two tests give positive results, other tests are required to distinguish between glucose and lævulose, maltose, &c. I have found blood examinations of much interest, and am glad to note the value attached to them by many writers in the last five years; but it would not be practicable to require them frequently in examinations for life assurance.—I am, Sir, yours faithfully,

Manchester, April 17th, 1920. R. T. WILLIAMSON.

BLIND MASSEURS.

To the Editor of THE LANCET.

SIR,—Will you allow me to draw the attention of your readers to the fact that at the recent examinations of the Incorporated Society of Trained Masseurs, which are known throughout the world for their completeness, Corporal Herbert Vickers, a blinded soldier of St. Dunstan's, passed first in all subjects. That this was no mean accomplishment may be judged by the fact that there were nearly 300 entrants for this examination. Of these less than 50 per cent. passed; while of the 16 St. Dunstan's entrants, of whom Corporal Vickers was one, 15 passed, and the one failure was accounted for by the fact that the unsuccessful candidate had for some weeks before the examination suffered severely from neuralgia, which had almost entirely robbed him of sleep.

I am, Sir, yours faithfully,
ARTHUR PEARSON,
Chairman, Blinded Soldiers' and Sailors' Care Committee
St. Dunstan's, Hanover Gate, Regent's Park, N.W.,
April 16th, 1920.

SIR PATRICK DUN'S HOSPITAL, DUBLIN: WAR MEMORIAL.

To the Editor of THE LANCET.

SIR,—The memorial brass and bed to 30 old Dun's students who fell or died on active service, which has been subscribed for by their comrades who also served in the war, is now approaching completion. A circular was sent to 415 old Dun's men who were on active service concerning this memorial, but it may not have reached some. Any who may wish to subscribe will kindly communicate at once with me at the hospital.

I am, Sir, yours faithfully,
HENRY C. DRURY,
April 20th, 1920. Hon. Sec., Sir Patrick Dun's Hospital, Dublin.

POST-GRADUATE COURSE ON SPA TREATMENT.—It is proposed to hold a post-graduate course from June 7th to 19th, on Spa Treatment in Bath, in conjunction with the Fellowship of Medicine and Post-Graduate Association. An admirable programme has been arranged and may be obtained from Dr. R. G. Gordon, of 6, Queen-square, Bath, secretary of the local committee. It includes morning clinical lectures on gout, arthritis of diverse ætiology, sciatica, fibrositis, and mere general disease, by Drs. R. L. J. Llewellyn, F. G. Thomson, King Martyn, R. Waterhouse, J. Lindsay, and R. G. Gordon. Part of the mornings will be absorbed by visits to hospital wards. In the early afternoons visits will be made to bathing establishments and the apparatus of balneotherapy will be demonstrated. At 5 P.M. lectures on subjects in relation to spa treatment will be given, including one on re-education by Dr. Gordon, one on diet by Dr. Wilson Smith, and one on the contra-indications and limitations of spa treatment by Dr. Llewellyn.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS

Medical Men and the Budget

THE Budget as explained by the Chancellor of the Exchequer to the House of Commons on Monday, April 19th, contains several important changes in taxation The standard rate of income-tax is unchanged, but new schedules are set out giving effect to the recommendations of the recent Report of the Royal Commission on Income tax and Super tax An entirely new system of graduation is adopted The duties on spirits are increased from 50*s* to 72*s* 6*d* per proof gallon, and the beer duty is raised from 70 to 100*s* per standard barrel Mr CHAMBERLAIN stated that he proposes to continue the existing motor car taxes and motor spirit duty until Dec 31st next, when they will be superseded by the new tax on motor vehicles recommended by the Committee set up by the Ministry of Transport, whose report was recently laid before Parliament Motor cars will in future pay a tax of £1 per horse power unit The abatement of duty granted in the case of motor cars used by medical practitioners and veterinary surgeons will cease

HOUSE OF COMMONS

WEDNESDAY APRIL 14TH

Disease as a Ground for Divorce

Mr RENDALL moved "That in the opinion of this House it is desirable that legislative effect should be given without delay to the recommendations contained in the Majority Report of the Royal Commission on Divorce "

Lieutenant Colonel RAW, in seconding the motion, said he was not in favour of weakening the marriage tie in any way in normal conditions He would limit his remarks to three recommendations of the Royal Commission Majority Report —namely, those in reference to incurable insanity, habitual drunkenness, and the position of the person who was the wife or husband of one serving a commuted death sentence He proposed to consider them more from the medical aspect than any other In the United Kingdom we had unfortunately 140,000 persons who were certified as insane under the Lunacy Acts, and of that number 50,000 were suffering from what was called dementia, or degeneration of the brain itself, which disease was incurable He urged that dementia ought to be a ground for divorce Between 30 000 and 40 000 of these people were married, and in a very large number of instances the husband or wife might not know each other, in fact, a great many of them did not realise that they were married at all Out of a large experience amongst the insane he might tell the House that he had never known any case of recovery from dementia which had lasted for five years, that was the period suggested in the Majority Report as the time of detention under the Lunacy Acts after which a person who was suffering from this form of insanity should be examined at the request of wife or husband by a body of medical experts, who would then satisfy themselves as to whether the disease was curable If they were satisfied that it was incurable that might be a ground for divorce These cases were particularly hard amongst the poor He would not suggest that any other form of physical or mental disease should be a ground for divorce except the particular one he had mentioned, because as that was an incurable form there could not be any relief The sufferer might live for 40 or 50 years before death came Another form of mental disease which was most distressing was epilepsy, and certainly he hoped that the day would come when marriage would be prohibited to those suffering from it, and from other forms of mental disease, if only on the ground of the value to the State of healthy people whereas, as they knew heredity played a very important part in the production of all mental disease Habitual drunkenness destroyed the very basis of married life It was proposed that after a separation order had been granted, and had been in force for three years if the drunkenness continued, and there was no evidence of any improvement the husband or wife might petition for divorce It was said on very high authority, by those who had great experience in cases of the kind, that from 90 to 95 per cent of habitual drunkards died drunkards It had been shown by long experience that if habitual drunkenness continued for three or four or five years without any evidence of improvement there was practically no possibility or hope of any cure In his opinion these two conditions, which were unfortunately so prevalent, incurable insanity and habitual drunkenness for three years, were certain grounds for petition for divorce As regarded the commuted death sentence, he had seen cases of that sort, and he thought there was nothing more distressing than, say, that an innocent woman had to remain the wife of a convict for 20 or 25 years without any means of improvement

Mr R McNEILL moved the following amendment "That in the opinion of this House, while it is desirable to place the sexes on a footing of equality in regard to divorce, any change in the law which would impair the permanence of the marriage contract would be harmful to the best interests of the community " After criticising strongly the attitude of the Lord Chancellor and those who supported the Majority Report, Mr McNeill referred to the question of venereal disease as a ground for divorce under the head of cruelty He admitted that it was a very serious thing, but it was quite unnecessary to put it in as one of the grounds of cruelty, because under an agreed Bill it was already being laid down and accepted that venereal disease contracted before marriage would be a ground for nullity whereas if it was contracted after marriage it might be accepted as conclusive evidence of adultery upon which a decree might be granted Unless it was on account of the moral taint which attached to that particular disease he could not understand why it should be singled out As far as cruelty was concerned he did not know that there were not other communicable diseases that were as bad certainly as far as danger to life and to the children was concerned Speaking entirely as a layman he imagined that medical men would say that tuberculosis was a disease which might just as well be a ground for divorce as one of these more disgusting diseases Again, why was divorce to be granted because one of the parties was habitually intoxicated, whereas no relief whatever was given for the still greater vice of morphomania?

Mr EVELYN CECIL seconded the amendment

On a division the amendment was carried by 134 votes to 91

Civil Veterinary Service in India

Sir RICHARD COOPER asked the Secretary for India if he had received representations of the position of the civil veterinary service of India owing to the inadequate salaries of its officers and the impossibility of retaining men of ability, if he would say what increase in pay had been generally made in this service since 1914, and if he could announce the intentions of the Government of India on this matter —Mr MONTAGU replied Proposals for improving the pay and prospects of the Indian Veterinary Service have recently been received from the Government of India, and these are now being examined An announcement will be made as early as possible

Indian Medical Degrees

Mr WATERSON asked the Under Secretary of State for the Colonies if he was aware that persons holding Indian university medical and law degrees, such as L M and S and B A B L, who were eligible to practise medicine and law respectively in India, were not allowed to so practise in British East Africa, and, if so, would he state why in British East Africa, where the protectorate was first established with the object of safeguarding the interests of His Majesty's Indian subjects in that country, where Indian law was to day administered and where Indians preponderated both in point of numbers and in vested interests the said Indian university medical and law degrees were not recognised —Lieutenant Colonel AMERY replied, I explained to the honourable Member in my answer to his question on March 24th that Indian medical degrees or diplomas are recognised in the East Africa Protectorate provided that they entitle the holder to registration in the United Kingdom Advocates who have been admitted and are entitled to practise before one of the High Courts in British India are entitled to practise in the East African courts The general question of Indians in East Africa is under consideration between the Secretary of State and the Governor of the Protectorate

Municipal Hospital at Bradford

Mr LEONARD LYLE asked the Minister of Health whether he had given his consent to the establishment of a municipal hospital at Bradford, if so, for what special reason and on what conditions, whether this consent would be extended to other local authorities putting forward similar proposals, whether this step agreed with his policy as enunciated on Feb 26th, 1919 in the House and elsewhere at other times, whether he was now in a position to make a statement on the policy of his department in respect to voluntary hospitals, and whether, before sanctioning further hospitals supported out of public funds he would consider the position of voluntary hospitals, which had for years done invaluable public work, which were now hard pressed for funds to continue their efforts and which were bound to be most prejudicially affected by competition on the part of organisations which would never experience financial stress in respect either of upkeep, maintenance, or administration —Dr ADDISON replied I have sanctioned a scheme supported by all parties on the Bradford Council for the establishment of a municipal hospital which appeared to me to be the only practicable method of providing the institutional accommodation necessary to meet the needs of the city I see nothing in this decision inconsistent with the statement to which the honourable Member refers. As regards the last part of the question, I fully appreciate the value of the work done by the voluntary hospitals, and I am aware of the difficulties under which they are now labouring; but I am not yet in a position to make any definite statement.

Mr. Lyle: Does this mean that every other borough and town will be able to set up hospitals if they apply in the same way?—Dr. Addison: Pending further legislation, which we are now preparing, I have to consider cases on their merits as they arise. I decided as I did because it was the only way of meeting the necessities of the case.

Deaths from Anæsthetics.

Mr. Gilbert asked the Minister of Health whether, in view of the number of inquests held in London on persons who had died from anæsthetics, he could ask the Medical Research Committee to undertake a full inquiry into the whole question of anæsthetics and their administration with a view of saving life in the future; and whether, if this could not be done, he would have the recommendations of the Home Office Departmental Committee of 1910 on the same subject put into practice.—Dr. Addison replied: In reply to the first part of the question, having regard to the scientific investigations which have been made in comparatively recent years, I am not at present convinced that there is need for a further investigation of the character that appears to be suggested, but I will give the matter my careful consideration. I have nothing to add to what I have already said in reply to previous questions on the matter dealt with in the second part of the question.

The National Physique.

Mr. Clough asked the Minister of Health whether his department had now considered the disclosures affecting the health of the people in the report upon the physical examination of men of military age by National Service medical boards; and whether he was bringing to the notice of the local authorities more especially mentioned the desirability of taking such reform as was possible in the improvement of conditions of housing and industry.—Dr. Addison replied: The report to which the honourable Member refers is only part of a mass of evidence indicative of the need for the reorganisation and extension of public health services, and for better housing, but it is impossible within the limits of a reply to a Parliamentary question to set out all the steps to this end which have been taken or are in contemplation.

THURSDAY, APRIL 15TH.

Cost of Lunatic Patients.

Mr. Charles Edwards asked the Minister of Health whether he was aware of the continued increase in the cost of lunatic patients chargeable to boards of guardians maintained at lunatic asylums and that the 4s. per head now paid was totally inadequate; and whether he would introduce legislation to amend the Local Government Act, 1888, so as provide for boards of guardians receiving a much higher sum than the above.—Dr. Addison replied: I can only repeat that in view of the contemplated legislation for the reform of the Poor-law this point could not advisedly be dealt with at the present time.

Gratuity for Temporary Army Nurses in India.

Brigadier-General Croft asked the Secretary for India whether he would explain why nurses temporarily attached to the Indian Army nursing service, who had done such good work on active service both in hospital ships between Mesopotamia and German East Africa and Bombay and had served in Mesopotamia, had been refused a gratuity by the Pay Department in India, whilst members of the Indian Army nursing service had received such gratuity, in spite of the fact that the temporary nurses did their full share of work, and had to put up with many discomforts in the discharge of their duties.—Mr. Montagu replied: The Government of India were authorised on March 11th to issue the gratuity to the temporary nurses, and payment will be made as soon as possible.

Unqualified Opticians.

Mr. Sitch asked the Lord President of the Council if it was his intention to appoint a committee to inquire into the supply of spectacles and eyesight glasses generally by vendors not qualified by examination, on the same lines as those of the recent inquiry into unqualified dental practitioners.—Dr. Addison (Minister of Health) replied: The conditions prevailing which rendered necessary the recent inquiry referred to have no parallel in the circumstances connected with the production of optical appliances.

MONDAY, APRIL 19TH.

Pensions Medical Assessors.

Major Molson asked the Pensions Minister whether, as the medical men employed as assessors on sessional rates were continuously employed for the same hours as the medical commissioners, he could see his way to pay them as equitably and allow them leave with pay and sick leave with pay.—Major Tryon (Parliamentary Secretary to the Ministry of Pensions) replied: It is not considered that medical assessors employed at sessional rates are inequitably paid. Their conditions of service are different from those of whole-time medical commissioners or deputy commissioners. The question of leave with pay cannot arise in the case of men who are engaged on a sessional and not a salaried basis.

Ear Discharge as Pension Disability.

Mr. Harry Hope asked the Pension Minister whether a man suffering from discharge from the ears, contracted while serving in the army, was considered as having a disability; and whether he was aware that an ear specialist serving on the Pensions Board, Adelphi Hotel, Glasgow, had passed a man nil-disability though suffering as described.—Major Tryon replied: I am unable to reply to this question without further information. A man suffering from a disability attributable to or aggravated by his military service is eligible for an award of pension or gratuity according to the extent of his disablement. If the honourable Member will furnish me with particulars of the individual case which he has in mind I will have inquiries made and inform him of the result.

Pensions of Naval and Military Medical Men.

Mr. Robert Young asked the Pensions Minister if he would state the number of regular naval and military medical men employed by the Ministry who were in receipt of pensions; and how many of these received pensions of over £500 a year.—Major Tryon replied: There are 12 regular naval or military medical men employed on a salaried basis in the Ministry in various parts of the country who are in receipt of pension in respect of their naval or military service. Inquiry is being made as to the amount of pension in each case, and the honourable Member will be informed of the result.

TUESDAY, APRIL 20TH.

Influenza and Double Pneumonia at Sea.

Lieutenant-Colonel Arthur Murray asked the Secretary for War and Air if he would state the reason why Second-Corporal James Munro Selbie, No. W.R. 288,177, R.O.D., Royal Engineers, who, after disembarkation from H.M.S. *Czaritza*, died at Devonport on Feb. 8th from influenza and double pneumonia, and whose temperature on the arrival of the *Czaritza* was 103·4°, was not taken off the ship at Gibraltar and sent to hospital for treatment; and whether, in view of his gradually rising temperature, his chances of recovery would have been greater had he been so disembarked.—Mr. Churchill replied: I have no specific information as to the reason why Second-Corporal Selbie was not disembarked at Gibraltar. From the reports received, however, it appears that until after leaving Gibraltar the case was one of uncomplicated influenza, and as such would not ordinarily be taken off a ship en route, since adequate provision for treatment exists on board. I am advised that there is no reason to suppose that the complications which unfortunately led to this soldier's death would not have supervened at or about the same period, even though he had been disembarked at Gibraltar.

Leg Amputations and Mechanical Limbs.

Mr. Alfred Davies asked the Pensions Minister whether he could state the number of pensioners in the north-western region who had sustained leg amputations, and the number of arm amputations; how many had been supplied with mechanical limbs; the cost to maintain them in repair prior to the supply of the second mechanical limbs; and whether he could state how many cases had been supplied with a second mechanical limb.—Major Tryon replied: The number of pensioners in the north-western region with leg and arm amputations respectively are 3550 and 1500. All of these pensioners have been fitted with artificial limbs. In addition, there are about 140 serving soldiers who are not yet ready to be fitted. The cost of maintaining the limbs in repair both prior to the supply of the second artificial limb and after is borne by the Ministry of Pensions. The issue of second limbs has been proceeding steadily since last October, but I am unable to state how many of the pensioners now supplied with them reside in the north-western area.

Service Teachers and Death Gratuity.

Mr. Stanton asked the President of the Board of Education if he was aware that ex-Service teachers who were no longer A 1 medical category through wounds or other disablement contracted on military service did not become entitled to the death gratuity under the terms of the Education Act, 1918; was he aware that in order to ascertain their present medical state these disabled ex-Service teachers were compelled to undergo a medical examination at their own expense, and should the result be that they were below B 1 their next-of-kin would receive no gratuity; and whether, seeing that the medical state of these men was A 1 on entering His Majesty's forces, and that a teacher who stayed at home because of unfitness could claim the benefit for his next-of-kin, he would take steps to rectify this state of affairs.—Mr. FISHER replied: It is not the case that ex-Service men whose category was below B 1 are regarded as ineligible for a death gratuity. The total number of ex-Service teachers held to be ineligible for death gratuities is only 35.

Medical Men and Motor-car Duty.

The House went into Committee of Ways and Means on the Budget resolutions.

Sir J. BUTCHER raised the question of the abolition of the abatement of duty granted in the case of motor cars used by medical practitioners and veterinary surgeons He asked the Chancellor of the Exchequer to reconsider this matter, which would be a great hardship to these gentlemen, who have to travel about the country largely in pursuit of their profession.

Mr. CHAMBERLAIN said he would convey what the honourable Member had said to the Minister of Transport, who *was dealing* with this aspect of the Budget. The honourable Member might also consult with his right honourable friend on the matter.

Medical News.

Royal College of Physicians of Edinburgh, Royal College of Surgeons of Edinburgh, and Royal Faculty of Physicians and Surgeons of Glasgow.—The following candidates have passed the Triple Qualification Examinations:—

Third Examination

Ian Bruce Cummings, William Dunsmore Oswald, James Brown Hendry, William Taylor Davie, Robert Emmet O Keeffe, Herbert John Appleyard, Peter James Boyd Dyce, Raymond Levey, Marjory Jane Ann Ogilvie, William Muirhead Reid, Adrian Vintcent Bergh, Alan Wilson Hart, William Bethune Stott, William Alexander Blyth Clark, Leonard Edward Murray, and John Joseph Laurence McDonald

Pathology—James Readdie, Jemima Marianna McKechnie Calder, James Maxton McInnes, James McNie Campbell, and Joseph Alfred Henry Sykes

Materia Medica.—Edward James Allan, Alexander Wilson Buchan, and William Gray

Final Examination

Albert Christian Lornie, Harry Barlow, Robert Charles Dow, William Grant, Robert Smith, George Shuttleworth Barnett, Owen Fitzpatrick, George Murray Shaw Lindsay, Harry Cohen, Francis Paul McNulty Clarke, George Malayramon Kerry, Anand Shridhar Paranjpe, Elly Isserow, and John Francis Edward Burns.

Medicine—Douglas Chiene Scotland, Thomas Poole, John Stevenson, Thomas Arnoldus du Toit, and James Stewart Durward

Surgery—James MacGlachan, James Stewart Durward, and John Haldane Bain.

Midwifery—Walter Sydney Patrick, Douglas Chiene Scotland, Arthur Cuthbertson, Thomas Poole, William Wolfe Glucksman, Harry Wishart Whytock, James MacGlachan, Walter Granville Carew, and Ardishir Jahangerge Vakil

Medical Jurisprudence—John Gerald Collee, Reginald Edward Hopton, John Nagard, Alexandra Mary Limont, Ronald Gillan Clouston, Pauline Figdor, Gracie Olwen Davies Evans, and Andrew Wood Smith

Royal College of Surgeons in Ireland.—Professor Grafton Elliot Smith has been elected to the Mary Louisa Prentice Montgomery Lectureship in Ophthalmology. The subject of his first lecture, which will take place in October, 1920, will be "The Influence of Stereoscopic Vision on the Evolution of Man."

The Tuberculosis Society of Great Britain and Ireland.—A general meeting of this society will be held at the rooms of the Medical Society, 11, Chandos street, Cavendish-square, London, W., on Monday, April 26th, at 8 P.M. Dr. Clive Riviere will read a paper on Some Points in the Early Diagnosis of Pulmonary Tuberculosis, to be followed by discussion. Members willing to assist in the arrangements for the congress at Leeds on May 13th and 14th, 1920, are asked to communicate with the hon. secretary.

Royal Army Medical Corps Fund (Regular Army) and Royal Army Medical Corps Officers' Benevolent Society (Regular Army).—The annual general meeting of the Royal Army Medical Corps Fund will be held in the library of the Royal Army Medical Corps College, Grosvenor-road, S W., at 2 30 P.M., on Monday, June 14th. The Director-General will preside It is hoped that all subscribers who can spare the time will be present, and will freely express their views on any point connected with the Fund. The annual general meeting of the Royal Army Medical Corps Benevolent Society will take place immediately afterwards. Any officers desiring information regarding these Funds are requested to communicate beforehand with Lieutenant-Colonel E. M. Wilson, the secretary, at 76, Claverton-street, S W. 1, so that there may be no delay in dealing with any questions asked.

Royal Army Medical Corps Central Mess Fund.—The annual general meeting of subscribers to the Royal Army Medical Corps Central Mess Fund will be held in the Library of the Royal Army Medical Corps College on *Monday, June 14th, following immediately that of the* Royal Army Medical Corps Officers' Benevolent Society. Officers desiring information about this fund are asked to communicate beforehand with Captain J. T. Clapham, the honorary secretary, at 3, Homefield-road, Wimbledon, S W., so that there may be no delay in dealing with any questions which may be asked. Notice of any definite proposal which it may be desired to bring forward should be sent to the honorary secretary in order that it may appear on the agenda paper.

Auxiliary Royal Army Medical Corps Funds, 11, Chandos street, Cavendish-square, W. 1, honorary secretary, Colonel W. Hale White, R.A M C. (T.)—The annual general meeting of members of the above Funds will be held on Friday, April 30th, at 4 P M, at 11, Chandos-street, Cavendish square The annual reports will be presented and the officers for the ensuing year elected.

Mr. Frederic Hoffmann, chairman of the Hoff-*mann-La Roche Chemical Works, Ltd, died at Basle,* on April 18th, after a long illness

The Council of British Ophthalmologists.—A general meeting, which all British ophthalmic surgeons are invited to attend, will be held at the house of the Royal Society of Medicine at 1, Wimpole street, on Friday, April 30th, at 4 P.M The business will be to receive the report of the Council on the work done during the last two years, and to consider the following amendments to Rule 3 of the Council. In Clause *a* (permanent members) to add "and the Master of the Oxford Ophthalmological Congress." In Clause *b* (elected members) to substitute "ten members elected annually" where it now reads "nine," and "two by the Council of the Oxford Ophthalmological Congress," instead of "one" as at present.

Ophthalmological Society of the United Kingdom.—*The annual congress will be held at the House of the Royal Society of* Medicine from Thursday to Saturday, April 29th to May 1st. On Thursday, at 10 A M. to 12 30 P M., the presidential address will be given by Mr. J. B. Story, and papers will then be read as follow:—Mr. C. H. Usher: Enlarged Corneæ in Goldfish Mr. E. Treacher Collins: Megalo cornea and Micro cornea. Mr. John Rowan: Are not some Cases of Glaucoma Better Treated without Operation, and, if so, what are the Indications? Mr. A. Zorab: Later Notes on Aqueoplasty. Mr. T. Harrison Butler. Notes on Infection after Operations for Cataract. Mr. G. H. Pooley: Abnormalities of the Lacrymal Apparatus and their Treatment. Mr. G. Harvey Goldsmith: A case of Double Traumatic Dislocation of the Lens Mr. G. F. Alexander: (1) A Position of the Head Favourable to the Operation for Cataract; (2) an Operation for Advancement in Strabismus. In the afternoon a clinical meeting will be held at 2 45 P.M., at the Royal London Ophthalmic Hospital, City-road, when there will be an exhibit of books, drawings, and museum specimens belonging to the hospital, and cases will be shown by Mr. A. Lawson, Mr. A. Zorab, Mr. F. Juler, and others Mr. B T. Lang will show a new perimeter. At 4 P.M. Mr. Percy Flemming will give a demonstration on the Neighbourhood of Moorfields in Former Days. *After tea the discussion of cases will be resumed at* 5 P.M, and at 7.30 P.M. members will dine together at Oddenino's Imperia Restaurant, 60, Regent street (12*s.* 6*d* per head)

On Friday, at 10 A.M., a discussion on Diabetes in Relation to Diseases of the Eye will be opened by Sir Archibald Garrod and Mr. R. Foster Moore, and the following will speak Dr. O. Leyton, Mr. G. Mackay, Dr. Poynton, Mr. P. H. Adams, Dr. P. J Cammidge, Mr. Gray Clegg, Dr. A. Renshaw, Dr. C. O Hawthorne, Lieutenant Colonel F. P. Maynard, Mr. R. R. James, and others. The business meeting will be held at 5 30 P.M. In the evening, at 8 P.M., papers will be read as follow: Mr. H M. Traquair: Anatomically Separate Anterior Commissure at the Chiasma in a Case of Pituitary Tumour with Acromegaly. Dr. G. Holmes: Tumours Involving the Optic Nerves and Chiasma. Mr. M. L Hine: Primary Epithelioma of the Ciliary Body. Mr. E. Clarke. A Further Note on the Accommodation of the Eye. Mr. H. Neame: Cysts of the Retina Mr. W. Wallace: A Glyptic Method for Representing Certain Conditions *of the Fundus in Disease. Mr. A. W. Stirling:* A case of Melanoma of the Iris.

On Saturday a visit will be paid at 10 A M to St. Margaret's Hospital, Leighton road, Kentish Town, the special hospital of the Metropolitan Asylums Board for cases of ophthalmia neonatorum, where a discussion on the Prevention and Treatment of Ophthalmia Neonatorum will be opened by Dr. G. Fitzgibbon, Master of the Rotunda Hospital, and Mr. M. S. Mayou, and the following will speak: Mrs. Scharlieb, Dr. Macrory, Mr. S. Stephenson, Mr. M. Ramsay, Mr. J. Wharton, Mr. A. L Whitehead, Mr. T. Stevenson, and Mr. C. Killick.

General Nursing Council.—The following have been appointed to form the first General Nursing Council in England and Wales under the Nurses Registration Act of 1919. Mr. Priestley will act as chairman of the Council.

Appointed by the Privy Council.—Lady Hobhouse, Mr. J. C. Priestley, K.C.

Appointed by the Board of Education.—Hon. Mrs. Eustace Hills, Miss Batty Tuke, Bedford College.

Appointed by the Minister of Health.—Rev. G. B. Cronshaw (Radcliffe Infirmary, Oxford), Dr. E. W. Goodall, Dr. A. Bostock Hill, Dr. Bedford Pierce, Sir T. Jenner Verrall.

Nurses appointed by the Minister of Health.—Miss A. Cattell (private practice), Mr. T. Christian (Nurse, Banstead Lunatic Asylum), Miss A. Coulton (Matron, Shadwell Children's Hospital), Miss R. Cox-Davies, R.R.C. (Matron, Royal Free Hospital), Miss A. Dowbiggin, C.B.E., R.R.C. (Matron, Edmonton Poor-law Infirmary), Mrs. E. G. B. Fenwick (formerly Matron, St. Bartholomew's Hospital), Miss A. Lloyd-Still, C.B.E., R.R.C. (Matron, St. Thomas's Hospital), Miss M. MacCullum (Professional Union of Trained Nurses), Miss I. Macdonald (Royal British Nursing Association), Miss A. M. Peterkin (General Superintendent, Queen Victoria Jubilee Nurses), Miss E. Smith (Welsh Superintendent, Queen Victoria's Jubilee Institute for Nurses), Miss M. E. Sparshott, C.B.E., R.R.C. (Matron, Royal Infirmary, Manchester), Miss E. C. Swiss (Health Visitor for Willesden), Miss S. E. Villiers (Matron, Stockwell Fever Hospital), Miss C. Worsley (Matron, Liverpool Children's Hospital), Miss C. S. Yapp (Matron, Ashton-under-Lyne Poor-law Infirmary).

Increased Capitation Fees for Postal Medical Officers.—In response to representations from the Association of British Postal Medical Officers the capitation fee payable to postal medical officers has been raised from 8*s.* 6*d.* (inclusive of medicine and attendance) to 13*s.* from Jan. 1st last. The rate of remuneration for attendance in itinerant and emergency cases is to continue for the present at the recently revised rate of a half-yearly maximum of 10*s.* 6*d.*

A Conference on Dental Hygiene.—The Food Education Society will hold a conference on the Prevention of Diseases of the Teeth at the Albert Hall, Manchester, from May 13th to 15th. On the opening morning Dr. Harry Campbell will speak on the Extent and Consequences of Dental Disease, Dr. J. Sim Wallace on the Cause and Prevention of Dental Caries, and Dr. James Wheatley on Sweets and Dental Caries. In the afternoon the Effect of Certain Dietetic Factors on the Development of Teeth and Jaws will be discussed by Mrs. Edward Mellanby, and Dietetic Errors and other Causes of Irregularities of the Teeth by Dr. J. H. Badcock. In the evening Dr. Harold Waller will speak on Dental Disease among Nursing and Expectant Mothers. On May 14th in the morning Mr. F. M. Holborn, L.D.S., will open a discussion on Pyorrhœa, and in the afternoon Mr. W. H. Jones, L.D.S., will speak on the Importance of Dental Attention during First Dentition, and Dr. A. T. Pitts on the Temporary Dentition in Health and Disease. On May 15th a paper on Some Thoughts on the Problems of Prevention will be read by Mr. C. Doswell Wallis, L.D.S., and the meeting will conclude with some remarks on Aids to Fitness by Mr. C. E. Hecht, hon. secretary, Food Education Society, 265, Strand, London, W.C.2, to whom applications for membership (5*s.*) should be sent.

Death of Mr. E. A. Maling, M.R.C.S.—On April 12th, at the age of 81, after a busy, happy, and successful life, Edwin Allan Maling passed peacefully away at his residence at Darlington. He was descended from a well-known Sunderland family, his father being Mr. E. Haygarth Maling, the founder of the Durham County and Sunderland Eye Infirmary, and a former surgeon of the Royal Infirmary. Mr. Maling was educated in the Grange School, Sunderland, and King's College Hospital, London, and held the post of house surgeon of the Royal Infirmary, Sunderland, for five years from 1860. In those days infectious diseases were received in the general wards, and for some months he attended, practically single handed, many cases of small-pox and typhus fever during a severe epidemic in the town. On leaving the infirmary Mr. Maling joined as partner for ten years Mr. G. Welford, the first surgeon in the North of England to perform a successful ovariotomy. Later, he was appointed an assistant surgeon, and then full surgeon, and since his resignation from the active staff in 1892 had been honorary consulting surgeon to the Royal Infirmary. From 1894 to 1903 he was in partnership with Mr. W. Robinson, the present senior surgeon to the Royal Infirmary. For 40 years Mr. Maling was one of the best-known medical men of the town and district, his courteous manners and genial disposition, his cheery voice, even temper, and constant willingness to work made him one of the busiest practitioners of the North of England in his day; and although he retired from practice in December, 1903, and went to live in the country, hundreds of his old patients look upon his decease as the loss of a constant friend. Though reserved in speech, Mr. Maling was an excellent judge of character, and his great experience and sound judgment made him a rapid diagnostician. For 40 years Mr. Maling was a J.P. for the county of Durham, and for many years past he was chairman of the Sunderland County Bench. Mr. Maling married a daughter of the late Mr. James Hartley, sometime M.P. for the borough of Sunderland, who survives him. He leaves also three daughters and three sons, the youngest of whom, Mr. G. A. Maling, gained the V.C. early in the war whilst serving in the R.A.M.C.

The annual dinner of the West London Medico-Chirurgical Society will be held at the Wharncliffe Rooms, Hotel Great Central, on Thursday next, April 29th, at 7 P.M. Those intending to be present should communicate with Dr. J. F. Halls-Dally, 93, Harley-street, W. The triennial gold medals, in the gift of the society, will be presented during the evening.

A 23rd Divisional Medical Dinner will be held at Oddenino's, Regent-street, London, W., on June 5th, at 7.15 P.M. All ex-medical officers of the above division who wish to attend are requested to send their names (with remittance of 15*s.* for dinner, exclusive of wine) to Major W. J. Pearson, New University Club, St. James's-street, London, S.W. 1. Names should be submitted by May 20th.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surg. Cmdr. O. Rees is placed on retired list with rank of Surgeon Captain.

Surg. Lieut.-Cmdr. L. Moss is allowed to withdraw from the Service with a gratuity.

Temp. Surg. Lieut. J. A. Watson is transferred to the permanent list.

ARMY MEDICAL SERVICE.

Col. W. E. Hardy is placed on half pay.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Col. and Bt. Col. C. B. Lawson retires on retired pay.

Lieut.-Col. J. P. Silver retires on retired pay on account of ill-health contracted on active service.

Lieut.-Col. H. A. Davidson relinquishes the acting rank of Colonel.

Lieut.-Col. C. J. O'Gorman relinquishes the temporary rank of Colonel.

Lieut.-Col. F. F. Carroll is restored to the establishment.

The undermentioned relinquish the acting rank of Lieutenant-Colonel: Major and Bt. Lieut.-Cols. W. F. Tyndale, B. A. Craig; Majors R. N. Hunt, H. W. Russell, C. J. Wyatt; Capt. and Bt. Majors R. E. Barnsley, P. S. Tomlinson.

Capt. and Bt. Major R. E. Barnsley to be acting Lieutenant-Colonel.

Capt. S. D. Robertson to be acting Major.

The undermentioned relinquish the acting rank of Major: Capts. C. Clarke, R. F. O'T. Dickinson, W. B. Rennie; Temp. Capts. P. K. McCowan, F. R. Brown, W. D. Cruickshank, C. H. B. Booth, S. Campbell.

Capt. R. H. Williams is placed temporarily on the half-pay list on account of ill-health contracted on active service.

Captains retiring receiving a gratuity: F. C. Davidson, R. B. Phillipps.

Officers relinquishing their commissions:—Temp. Lieut.-Col. A. G. P. Gipps (retains the rank of Lieutenant-Colonel). Temporary Majors retaining the rank of Major: E. B. C. White, T. W. Shaw, T. P. Devlin. Temp. Capts. H. Gardiner-Hill (on transfer to the R.A.F.) and (Brevet Major) A. E. Boycott (retains the Brevet rank of Major). Temporary Captains granted the rank of Major: T. M. Crawford, (acting Major) R. McRae, S. A. W. Munro, (acting Major) B. G. Brooke, W. V. Macaskie, J. Hewat. Captains retaining the rank of Captain: W. Tudhope, J. Keay. Temporary Captains retaining the rank of Captain: W. H. W. Mewhirter, M. Horan, F. B. Penfold, J. P. F. Waters, F. C. S. Bradbury, A. King, G. F. Hardy, J. G. Castellain, J. G. Ingouville, R. Lindsay, A. L. Robinson, F. Green, G. G. Old, A. Willatt, E. M. Balthaser, C. S. Wynne, J. Whiteside, A. H. H. Barclay, W. T. Munro, T. P. Hutchison, R. H. Rains, E. O. Gilkes, P. A. Dykes, E. D. Wellburn, E. Clarke, W. E. Stevenson, O. Carlyle, F. J. H. Begg, E. J. Blewitt, H. B. Waller, R. C. Macpherson, H. W. Bernard, E. S. B. Eames, T. W. Parry, S. Nockolds, M. A. Kirton, D. A. H. Moses, A. G. W. Thomson, H. G. E. Williams, P. J. O'Brien, A. J. Chillingworth, E. W. Blake, J. J. H. Ferguson, H. E. Gray, S. Wyborn, J. Menton, D. C. Norris, F. W. Rigby, R. B. Robson, D. M. Cox, G. H. F. Graves, D'A. I. Hamilton, R. T. St. J. Brooks, R. A. Wright, H. R. Souper, G. Bateman, W. N. Boog-Watson, J. G. Gemmell. Temp. Lieut. G. A. Fothergill (retains the rank of Lieutenant).

SPECIAL RESERVE OF OFFICERS.

Major M. R. Taylor relinquishes his commission on account of ill-health caused by wounds, and is granted the rank of Lieutenant-Colonel.

Capt. (acting Major) C. J. Rogerson to be acting Lieutenant-Colonel.

Captains relinquishing the acting rank of Major: H. D. Rollinson, A. F. L. Shields, M. Stewart, C. Armstrong.

TERRITORIAL FORCE.

3rd London General Hospital: Capt. S. H. Warren relinquishes his commission and retains the rank of Captain.

1st Western General Hospital: Capt. J. L. Roberts is restored to the establishment.

ROYAL AIR FORCE.

Medical Branch.—The undermentioned are transferred to the unemployed list: Capts. P. E. Williams, H. G. Anderson, L. W. Shelley, H. S. Baker, J. B. Barnett, D. C. Farquhason, A. Thompson, A. St. J. Hennessy, A. J. Davoren, G. McK. Thomas.

Dental Branch.—Capt. L. Wigoder is transferred to the unemployed list. Lieut. T. H. Jones relinquishes his commission and retains his rank.

INDIAN MEDICAL SERVICE.

Captains to be Majors: R. Knowles, W. E. Brierley, J. B. Lapsley, J. A. Shorten, R. B. S. Sewell, C. H. Fielding, W. L. Watson, J. W. Barnett, Madan Lal Puri, Satya Charan Pal, R. S. Townsend, R. B. Lloyd, A. C. Munro, A. G. Tresidder, G. G. Jolly, Sohrab Shapoorji Vazifdar, J. J. H. Nelson, E. S. Phipson, F. F. Smith, T. C. Boyd.

Captain to be temporary Major: R. E. Flowerdew.

Temporary Lieutenants to be temporary Captains: Justinian Anthony da Costa, Sundar Lal Bhandari, Armand Marcus Duarti, Aruldason Devasagayam, Aung Tun, Narendra Nath Ghosh, Priya Nath Lahiri, Satya Sakha Maitra, Sobha Ram Puri, Gopal Charan Sen, Bodh Raj Chaudhari, Yeshvant Prabhakar Gupte, Kannauthodath Padmanabha Menon, Shankar Ganesh Chavan, Joseph Costodio Sequeira, Gajanan Mukund Bhurke, Prabhaker Shanker Gupte, Nagendra Nath Saha (since deceased), Indra Bhusan Mazumdar, Bantwal Panduranga Baliga, Bhai Naranjan Singh Sethi, Ram Chandra Ganda, Gopal Chandra Ray, Dadabhoy Barjorji Doctor, Mohamed Ajmal Husain, Jiwanlal Kapoor, Yar Mohammad Siddique, Desraj Kehar, Coimbatore Venkataramanayar Krishnaswami, Dara Hormusji Bharucha, Dwarka Deish, Yeshwant Bhicajee Ranade, Har Bhagwan Vaid, Vittal Narain Benegal, Ramkrishna Venkata Rajam, Premankur De, Shiva Narain Govil, Bhagwan Das Myer, Harilal Prabhudas Dalal, Ambicaprasad Bajpayee, Krishnaji Nilkant Chhatre, Dayaram Harumal Mirchandani, Suresh Candra Banerjee.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

THURSDAY, April 29th.—Papers:—Prof. J. W. Gregory: The Irish Eskers.—Miss K. M. Curtis: The Life History and Cytology of *Synchytrium Endoboticum* (Schilb.) Perc., the Cause of Wart Disease in Potato (communicated by Prof. V. H. Blackman).—Mr. B. Sahni: On the Structure and Affinities of *Acmopyle Pancheri*, Pilger (communicated by Prof. A. C. Seward).

ROYAL SOCIETY OF MEDICINE 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, April 26th.

ODONTOLOGY (Hon. Secretaries—G. Paton Pollitt, W. Kelsey Fry, J. Howard Mummery): at 8 P.M.

Papers:

Mr. Gerald B. Ash: A Factor in the Pathology of Pyorrhœa.

Mr. H. Stobie: *The Problem of Infection about the Apex of the Tooth.*

Tuesday, April 27th.

MEDICINE (Hon. Secretaries—W. Cecil Bosanquet, J. H. Thursfield): at 5.30 P.M.

Annual General Meeting—Election of Officers and Council for 1920-1921.

TUBERCULOSIS SOCIETY OF GREAT BRITAIN AND IRELAND, at the Rooms of the Medical Society, 11, Chandos-street, Cavendish-square, W.

MONDAY, *April 26th.—8 P.M., Paper*:—Dr. C. Riviere: Some Points in the Early Diagnosis of Pulmonary Tuberculosis, followed by a discussion.

CHILD STUDY SOCIETY, LONDON, at the Royal Sanitary Institute, 90, Buckingham Palace-road, S.W.

THURSDAY, April 29th.—6 P.M., Sir A. E. Shipley: Biting Insects and Children (illustrated by lantern slides).

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

MONDAY, April 26th.—2 P.M., Mr. B. Harman: Eye Department. 5 P.M., Dr. Morton: Carbon Dioxide Snow.

TUESDAY.—12 noon: Mr. T. Gray: Demonstration of Fractures, &c. 5 P.M., Mr. Banks Davis: *Clinical Lecture* (2).

WEDNESDAY.—2 P.M., Mr. D. Armour: *Demonstration of Surgical* Cases. 5 P.M., Mr. Addison: Ventral Hernia, Prevention and Treatment.

THURSDAY.—College closed. Annual Meeting, West London Hospital.

FRIDAY.—2.30 P.M., Dr. Pritchard: Demonstration of Medical Cases. 5 P.M., Dr. Burnford: Clinical Lecture with Cases.

SATURDAY.—10 A.M., Dr. A. Saunders: Medical Diseases of Children. 2 P.M., Dr. Owen: Medical Out-patients.

Daily:—10 A.M., Ward Visits. 2 P.M., *In-patient and Out-patient* Clinics and Operations.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON).

A Course of Post-Graduate Lectures on Syphilis is being given *by various members of the staff of King's College Hospital* during the present year.

FRIDAY, April 30th.—9.15 P.M., Mr. T. P. Legg: Syphilis in Surgical Practice (1).

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, *Brompton*, S.W.

MONDAY, April 26th.—2 P.M., Dr. Melville: X Ray Department.

TUESDAY.—2 P.M., Dr. D. Grant: Throat Department. 2.30 P.M., Demonstration:—Dr. Maitland: Medium Cases.

WEDNESDAY.—10.30 A.M., Dr. Punch: Demonstration of Museum Specimens. 2 P.M., Dr. Gosse: Cardiographic Department. 2.30 P.M., Demonstration:—Dr. Burrell: Early Cases.

THURSDAY.—10.30 A.M., Dr. Burrell: *Artificial Pneumothorax.* 2.30 P.M., Demonstration:—Dr. Punch: Early Cases.

FRIDAY.—2 P.M., Dr. Melville: X Ray Department. 2.30 P.M., Demonstration:—Dr. Fenton: Early Cases.

SATURDAY.—1 P.M., Dr. Batty Shaw: Special Demonstration in the Out-patient Department.

UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE POST-GRADUATE LECTURES, at the Sheffield Royal Hospital.

WEDNESDAY, April 28th.—4 P.M., Prof. A. Hall: Bacterial Endocarditis.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.

TUESDAY, April 27th.—4.30 P.M., Lecture:—Mr. F. Westmacott: Early Diagnosis of Carcinoma of the Larynx.

SALFORD ROYAL HOSPITAL AND ANCOATS HOSPITAL POST-GRADUATE DEMONSTRATIONS, at the two Hospitals *alternately.*

THURSDAY, April 29th.—4.30 P.M., Dr. Renshaw: The Chemical and Bacteriological Examination of the *Urine in Disease.* (At Ancoats Hospital.)

Communications, Letters, &c., to the Editor have been received from—

A.—Auxiliary Royal Army Medical *Corps Funds, Lond.; Mr. J.* Aulich, Lond.

B.—Dr. A. Balfour, Lond.; Dr. C. F. Bailey, Brighton; Lieut.-Col. Sir J. Barrett, Melbourne; Sir B. Blair, Lond.; Mr. C. K. Bond, Lond.; Board of Education, Lond.; Blinded Soldiers and Sailors' Hostel, Lond., Chairman of; Dr. C. G. S. Baronsfeather, Pakhoi, South China; Dr. J. C. Boyd, Dunoon; Sir J. Byers, Belfast; British-American Chamber of Commerce, Lond.; Mr. U. R. Boulter, Seven Kings.

C.—Dr. H. C. Cameron, Lond.; Messrs. Cassell and Co., Lond.; Dr. C. W. Chapman, Lond.; Dr. C. Coombs, Bristol; Conjoint Board of Scientific Societies, Lond.; Dr. L. Calthrop, Harrogate; Dr. E. L. Collis, Cardiff; Sir F. Colyer, Lond.

D.—Mr. H. Dickinson, Lond.; Dr. J. Dulberg, Manchester; Department of Scientific and Industrial Research, Lond.; Messrs. J. L. Denman and Co., Lond.; Dr. W. A. Daley, Bootle; Mr. J. S. Dawbarn, Lond.

E.—Equitable Life Assurance Society, Lond.; Mr. D. L. Eadie, Edinburgh; Mr. W. McAdam Eccles, Lond.

F.—Federation of Medical and Allied Societies, Lond.; Major *E. G. Ffrench, R.A.M.C., Lond.*; Food Education Society, Lond.

G.—Dr. R. G. Gordon, Bath; Dr. R. R. Giddings, Nottingham; Dr. D. Gray, Peking; Great Northern Central Hospital, Lond.; Dr. H. H. Gellert, *Bradford.*

H.—Mrs. E. S. Hoole, Lond.; Dr. N. Hobhouse, Lond.; Dr. J. T. Hislop, Wrexham; Hoffmann-La Roche Chemical Works, Lond.

I.—Insurance Committee for the County of London; Industrial League and Council, Lond.

J.—Dr. G. G. Johnstone, Lond.

K.—Dr. G. Keynes, Lond.; King's College Hospital Medical School.

L.—Mr. G. Lunan, Edinburgh; London (Royal Free Hospital) School of Medicine for Women, Asst. Sec. of.

M.—Ministry of Health, Lond.; *Dr. C. S. Myers, Lond.*; Ministry of Pensions, Lond.; Ministry of Agriculture and Fisheries, Lond.; Mr. G. Mayall, Belton; *Mr. A. McMillan, New Romney.* Dr. P. H. Manson-Bahr, Lond.; Miss H. Masters, Lond.

N.—National Safety Council, Chicago; Nurses' Co-operation, Lond.; Dr. H. B. Newham, Lond.; National Council of *Public Morals, Lond.*; National Association of Medical Herbalists of Great Britain.

O.—Miss K. O'Conor, Ware; Ophthalmological Society of the United Kingdom, Lond.; Dr. Orchard, Kingussie.

P.—Dr. A. G. Phear, Lond.; Capt. A. E. H. Pinch, Lond.; Dr. V. Pauchet, Paris; Mr. L. Paton, Lond.; Mr. J. H. Pringle, Glasgow; Dr. H. R. Phillips, Lond.; *Major W. J. Pearson, Lond.*

R.—Royal Society, Lond.; Royal Mail Steam Packet Co., Lond.; Mr. R. Robison, Lond.; Royal Faculty of Physicians and Surgeons, Glasgow; Royal Medical Benevolent Fund, Lond., Sec. of.; Royal Microscopical Society, Lond.; Royal Army Medical Corps Fund, Lond., Sec. of; Royal College of Physicians, Lond., Registrar of; Royal Infirmary, Manchester, Sec. of; Dr. W. Robinson, Sunderland; Dr. Rollier, Leysin; Royal Institution of Great Britain, Lond.; Royal Academy of Arts, Lond.; Royal College of Surgeons in Ireland, Dublin.

S.—Society for the Propagation of the Gospel in Foreign Parts, Lond.; Société des Sciences Médicales et Biologiques de Montpellier; Save the Children Fund, Lond.; Dr. E. Sayer, Lond.; Dr. H. Spencer, Lond.; Prof. W. Stirling, Manchester; Dr. G. F. Still, Lond.; Dr. A. H. Stephenson, Dickson, Tenn.; Sir Patrick Dun's Hospital, Dublin, Hon. Sec. of.

T.—Mr. H. M. Thornton, Lond.

U.—*University of Glasgow; University of Liverpool*, Appeal, Director of; United Services Medical Society, Lond., Sec. of.

V.—*Volta Review*, Washington, Associate Editor of.

W.—West London Post-Graduate College; *Miss Weir, Killybegs*; Dr. F. J. Waldo, Lond.; Dr. H. J. Walker, Brighton; Dr. R. T. Williamson, Manchester; Sir G. Sims Woodhead, Cambridge.

Appointments.

de Courcy, T. L., B.A., M.D. Dub., has been appointed Honorary Ophthalmic Surgeon to Royal Southern Hospital, Liverpool.

Puddicombe, T. P., M.B. Lond., D.P.H., Assistant County and School Medical Officer and Mental Expert under the Essex County Council.

Ryle, J. A., M.D. Lond., M.R.C.P. Lond., Assistant Physician to Guy's Hospital.

Saner, F. D., F.R.C.S., Surgeon to Out-patients, Great Northern Central Hospital.

Winton, W. B., M.D., B.C., M.R.C.P., Assistant Physician at the Hospital for Diseases of the Skin, Blackfriars.

Wyatt, R. B. H., M.R.C.S., L.R.C.P., Lecturer in Bacteriology in the University of Birmingham and Bacteriologist to the Queen's Hospital.

Certifying Surgeons under the Factory and Workshop Acts: Jones, E. P. (Roscommon); Moran, M., L.R.C.P. & S. Irel. (Tipperary); Murray, J., L.R.C.P. & S. Edin. (Consett); Quinn, R. A., M.B., Ch.B. St. And. (Caldbeck).

Vacancies.

For further information refer to the advertisement columns.

All Saints' Hospital (for Genito-Urinary Diseases), 49–57, Vauxhall Bridge-road, Victoria, S.W.—H.S. £100.

Ashton-under-Lyne District Infirmary.—Asst. H.S.. £200.

Barnsley, Beckett Hospital.—Jun. H.S. £200.

Bath, Royal Mineral Water Hospital.—Res, M.O. £250.

Battersea General Hospital, Battersea Park, S.W.—Res. M.O. £250.

Belfast, Municipal Sanatorium, Whiteabbey.—Res. Med. Supt. £650.

Birkenhead Borough Hospital.—Jun. H.S. £170.

Birmingham, Children's Hospital.—Res. M.O. and Res. Surg. O. £120.

Birmingham General Hospital.—Res. Surg. O. £180.

Birmingham, West Heath Sanatorium.—Med. Supt. £500.

Birmingham, Yardley-road Sanatorium and Anti-tuberculosis Centre.—Second and Third Asst. Res. M.O.'s. £450 and £400.

Bootle Borough.—M.O.H., &c. £800.

Bradford Children's Hospital.—H.S. £180.

Bradford Royal Infirmary.—Two H.S.'s £200.

Bridgend, Glamorgan County Asylum.—Jun. Asst. M.O. £350.

Brighton, Royal Sussex County Hospital.—H.P. £150.

Burton-on-Trent County Borough.—Asst. M.O. £500.

Buxton, Derbyshire, Devonshire Hospital.—H.P. £250.

Cairo, Egyptian Government, Ministry of Education.—Professor of Pathology. L.E. 1200–1400.

Camberwell Infirmary, Brunswick-square, Camberwell.—Locum Tenens Asst. M.O. £7 7s. weekly.

Cambridge, Addenbrooke's Hospital.—H.S. £130.

Cancer Hospital, Fulham-road, S.W.—Three Anæsthetists.

Canterbury, Kent and Canterbury Hospital.—Res. M.O.'s. £200.

Cardiff, King Edward VII. Hospital.—Female H.S. £200.

Croydon Union.—M.O. for South Croydon District. £200.

Derby, Derbyshire Hospital for Women, Bridge-street.—Hon. Asst. S.

Durham University.—Asst. in the Dept. of Bacteriology. £600.

Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—Female Jun. Asst. P., Clin. Assts., Two H.S.'s, H.P., and Obstet. Asst. £50 each.

Evelina Hospital for Children, Southwark, S.E.—H.S. £160.

Evelina Hospital for Sick Children, Southwark Bridge-road, S.E.—Medical Radiographer. £120.

Exeter City.—Asst. Tuberc. O. and Asst. M.O.H. £500.

Fulham Infirmary, St. Dunstan's-road, Hammersmith, W.—Jun. Asst. M.O. £300.

Gloucestershire Royal Infirmary and Eye Institution.—H.P. £175.

Great Yarmouth County Borough.—Asst. M.O.H. £500.

Hereford County and City Mental Hospital.—Second Asst. M.O. £350.

Hospital for Sick Children, Great Ormond-street, London, W.C.—Surg. Registrar. £200.

Huddersfield Royal Infirmary.—Asst. H.S. £150.

Inverness District Asylum.—Jun. Asst. M.O. £250.

Ipswich.—Asst. County M.O.H. £500.

Ipswich, East Suffolk County Education Committee.—Dent. S. £450.

Isleworth Infirmary and Workhouse and Central Scattered Homes.—Two Asst. M.O.'s. £300.

Leeds City, Tuberculosis Sanatorium, Killingbeck.—Med. Supt. £500.

Leeds Public Dispensary.—Res. M.O. £200.

Leeds University.—Demonstrator in Exp. Phys. £250.

Lincoln, Lindsey County Council.—Female Asst. M.O. £550.

London Temperance Hospital, Hampstead-road, N.W.—Cas. O. £120.

Loughborough and District General Hospital and Dispensary.—Res. H.S. £200.

Macclesfield, Cheshire County Asylum, Parkside.—Asst. M.O. £350.

Macclesfield General Infirmary.—Res. H.S. £200.

Maidstone, Kent County Ophthalmic Hospital.—H.S. £250.

Manchester County Asylum, Prestwich.—Asst. M.O. £450.

Metropolitan Asylums Board, North-Eastern Fever Hospital, Tottenham, and Western Fever Hospital, Fulham.—Consulting Otologist. £250.

Middlesbrough, North Ormesby Hospital.—Asst. H.S. £175.

Middlesbrough, North Riding Infirmary.—H.S. £200.

Mount Vernon Hospital for Tuberculosis and Diseases of the Chest, Northwood, Middlesex.—Asst. Res. M.O. £200.

Newcastle-upon-Tyne, City Hospital for Infectious Diseases.—Res. Med. Asst. £350.

Newport, Mon., Royal Gwent Hospital.—Fourth Res. M.O. £180.

Norfolk County.—Tuberc. O. £600.

Northampton General Hospital.—H.S. £150.

North Riding of Yorkshire County Council, Education Committee.—Asst. Sch. M.O. £500.

Northumberland County.—Sch. Med. Insp. £500.

Norwich City.—Asst. M.O.H. and Res. M.O. at Isolation Hospital. £450.

Norwich, Norfolk and Norwich Hospital.—Cas. O. £200.

Nottingham Education Committee.—Sch. Dent. £500.

Nottingham, Notts County Council.—Female Asst. Child Welfare M.O. and Asst. Sch. M.O. £500.

Oldham Royal Infirmary.—Third H.S. £200.

Peterborough City and Borough.—M.O.H. £650.

Portsmouth Royal Hospital.—H.S. £150.

Preston Royal Infirmary.—Jun. H.S. £180.

Queen Charlotte's Lying-in Hospital, Marylebone-road, N.W.—Asst. Res. M.O. £60.

Queen Mary's Hospital for East End, Stratford, E.—H.P.

Rochester, Kent, St. Bartholomew's Hospital.—Jun. Res. M.O. £150.

Royal Free Hospital, Gray's Inn-road, W.C.—Sen. Res. M.O. £200.

St. John's Hospital for Diseases of the Skin, 49, Leicester-square, W.C.—Two Asst. P.'s.

St. Marylebone General Dispensary, 77, Welbeck-street, Cavendish-square, W.—Res. M.O. £200.

St. Mary's Hospital for Women and Children, Plaistow, London, E.—Res. M.O. £200.

Salford Education Committee.—Asst. Sch. M.O. £400 to £600.

Salford Royal Hospital.—H.S. £150.

Sheffield, East End Branch of the Children's Hospital.—H.S. £150.

Sheffield Royal Hospital.—Asst. Cas. O. £150.

Sheffield Royal Infirmary.—Two H.S's and one Ear, Nose, and Throat H.S. £150.

Shoreditch Hospital, 201, Hoxton-street, N.—Two Res. Asst. M.O.'s. £400 and £350 respectively.

Stamford, Rutland, and General Infirmary, Stamford.—H.S. £200.

Stoke-on-Trent, North Staffordshire Infirmary.—H.S. £200.

Sunderland Royal Infirmary—H.P. £200.

Swansea General and Eye Hospital.—Two H.S.'s. £200.

Torquay, Torbay Hospital.—H.S. £200.

Trowbridge, Wilts County Council.—Third Sch. Dent. £400.

University of London, King's College, Department of Physiology.—Demonstrator in Physiology. £300.

University of London, St. Mary's Hospital Medical School.—University Chair of Physiology. £900.

Wells Asylum, Somerset.—Sen. Asst. M.O., . £400.

West Bromwich and District Hospital.—Res. H.S. £200.

West Ham Union.—Two Specialist Consultants. £150.

Western Dispensary, Rochester-row, S.W.—Vacancy on Med. Staff.

Wimbledon, Borough of.—Asst. M.O.H. £500.

Wolverhampton and Staffordshire General Hospital.—Hon. P. Also Hon. M.O. for X Ray and Electro-Therapeutic Department. £100.

Woolwich Tuberculosis Dispensary, Maxey-road, Plumstead, S.E.—Asst. Tuberc. O. £500.

Worcester County Borough.—Asst. M.O.H. £500.

Worcester County and City Mental Hospital, Powick.—Jun. Asst. M.O. £300.

The Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Blarney, Kingston-on-Thames, Menai Bridge, and North Berwick.

Births, Marriages, and Deaths.

BIRTHS.

Benson.—On April 17th, at Fiddington House, Market Lavington, the wife of J. R. Benson, F.R.C.S., of a son.

Easton.—On April 7th, at a nursing home, the wife of Wilfred A. Easton, M.R.C.S., L.R.C.P., L.D.S., Wimbledon Park, of a son.

Farnfield.—On April 14th, at Ashburnham-road, Hastings, the wife of Dr. J. S. Farnfield, of a son.

Martin.—On April 7th, at Park-gardens, Glasgow, the wife of Captain W. Strelley Martin, M.C., R.A.M.C., of a daughter.

Pinnock.—On April 12th, the wife of Dudley Denham Pinnock, F.R.C.S., of a son.

Pridham.—On April 12th, at the Nursing Home of St. Andrew's Hospital, Dollis Hill, the wife of J. A. Pridham, M.C., L.R.C.P., M.R.C.S., of a daughter.

Vlasto.—On April 15th, at 29, Porchester-terrace, W. 2, Chrissy (née Croil), the wife of M. Vlasto, F.R.C.S., of a daughter.

Wilkinson.—On April 16th, the wife of Dr. Stephen Harold Wilkinson, of a daughter.

MARRIAGES.

Abraham—Francis.—On April 21st, at St. Martin-in-the-Fields, London, J. Johnston Abraham, M.D., F.R.C.S., C.B.E., D.S.O., to Lilian Angela Francis, F.R.M.S., eldest daughter of Dr. H. A. Francis.

Edwards—Hoskin.—On April 13th, at the Chapel Royal, Savoy, Arthur Tudor Edwards, M.C. Cantab., F.R.C.S., to Evelyn, only daughter of the late D. Theophilus Hoskin, J.P., and Mrs. Hoskin, of Cumberland-mansions, W., and Cornwall.

Garman—Locke Lancaster.—On April 15th, at St. John the Evangelist, Notting-hill, Dr. Edwin C. Garman, to Florence, widow of Robert Locke Lancaster, and daughter of the late Rev. Canon Gandell.

DEATHS.

Collis.—On April 14th, at Sandown, Isle of Wight, Dr. Robert William Collis, in his 65th year.

de Castro.—On April 14th, suddenly, at Drummond-road, Bournemouth, George de Castro, M.R.C.S., L.R.C.P.

Henderson.—On April 19th, at Littlecot, Harnham Hills, Salisbury, Thomas Bonhote Henderson, M.A., M.B., F.R.C.S.

Hunt.—On the 17th April, at Uplands, Tettenhall, Staffs (the residence of his brother-in-law), Joseph William Hunt, M.D., B.S. (Lond.), formerly of Woodchester, Upper Clapton, aged 68. No flowers.

Tyrrell.—On April 14th, at Alexandra-road, N.W., Walter Guy Beauchamp Tyrrell, M.R.C.S., L.R.C.P., D.P.H., of Hilmarton-road, N., in his 59th year.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

LAMBETH MEDICAL DEGREES

IN the Middle Ages degrees in divinity, law, and medicine were granted by the Popes of Rome independently of the universities, and prior to the Reformation the Archbishop of Canterbury exerted his right to confer academic degrees in this country by virtue of his position as *legatus natus* of the Holy Father After the break with papal authority, this privilege of the See of Canterbury was confirmed by statute in 1534 (25 Hen VIII c 21), which provided that the Archbishop of Canterbury shall have power to grant "all manner such licenses, dispensations compositions, faculties grants, receipts, delegacies, instruments, and all other writings for causes not being contrary or repugnant to the Holy Scriptures and laws of God, as heretofore hath been used and accustomed to be had and obtained by your Highness or any of your most noble progenitors, or any of your or their subjects at the See of Rome " Degrees are understood to be included in the term "faculties," and the episcopal privilege has, during the four centuries which have elapsed, never been abrogated The Index to the Statutes in Force still speaks of the "power of the Archbishop of Canterbury to grant Dispensations and Licenses "

But although always existing, the right has been exerted in very varying degrees at different times Cranmer is known to have commissioned the Bishop of Norwich to confer the degree of D D on a certain Eligius Ferrers Prior to the Restoration there is record of only seven bestowals, none of them being medical degrees In 1660 Archbishop Juxon conferred an M D and an M B degree, and between his death in 1663 and the year 1848 there were 451 Lambeth graduates, 31 of whom secured the right to place M D Cantuar after their names, and one—namely, Peter Dent, of Trinity College, Cambridge—became M B Cantuar in 1678

In 1858, when the right to practise medicine became strictly limited by statute, a section in the Medical Act provided for the registration of Lambeth medical degrees if granted prior to the passing of the Act The gentlemen eligible for such registration are contained in the following list of Lambeth doctors of medicine, which is complete from the beginning of last century up to the passing of the Medical Act —

Year of conferment	Name and other qualifications so far as known
1803	Robert Pope
1806	Thomas Day
1817	Whitlock Nicoll, M R C S, M D Aberd and Glasg
1818	John Day
1819	Carr Ellison Lucas
1822	William Oliver Locke
1824	James Rumsey
1825	Daniel Jarvis
1826	Edward Grimstone
1827	Sir Charles Mansfield Clarke, Bart, M R C S *F R C P Lond*
	William Chandler
1828	William Samways Oke L R C P M R C S, L S A
1836	Sir David Davies, K G H, L R C P
1840	Robert Hull, L R C P, M R C S
1841	Sir William Hyde Pearson
1849	Joseph Laurie, L R C S Edin
1850	William Bayes, M R C S, L R C P
	Edmund Charles Johnson, M R C S, F R C S
1851	Frederick Gilder Julius M R C S, L S A, F R C S
	John Green Bishop, M R C S
1854	George Canney, M R C S, L S A
1855	John Hodgson Ramsbotham, M R C S, L S A, M D Erlangen
	Ralph Barnes Grindod, L S A, M D Erlangen
1856	William Sharp, M R C S, L S A
	Edward Phillips, M R C S
1858	Edward Cronin, M D Dub
	Edmund Smith, M R C S, L S A.
	William Baker

Shortly after the passing of the Act three further degrees were conferred, viz —(1861) John Rayner, L S A, M R C S, M R C P Edin, and Edward-Westall, (1862) William Sherwin But the practice then ceased, and it is now nearly 60 years since an M D Cantuar has been granted, and, as far as we know, the death of the last holder was recorded in the columns of THE LANCET of April 18th, 1896 —

> SHARP —On April 10th at Llandudno, William Sharp, M.D Lambeth, F R S of Rugby, aged 91

With a few possible exceptions, it will be seen that in all, or nearly all, of these pontifical conferments the legal right to practise medicine was already there This was certainly so in the case of Sir Charles Mansfield Clarke, to whom Archbishop Manners Sutton granted an M D in the year 1827, and who had held the diploma of M R C S since 1802 On this occasion a letter signed "Peter Permissus," addressed to Sir Henry Halford, P R C P, appeared in THE LANCET (April 12th, 1828), in which the writer admits that no class of men understand better the value of learning than the clergy, and goes on —

> 'The whole of the existing bench of Bishops have been educated at Oxford or Cambridge, and they feel reluctant in ordaining such as present themselves from other universities The College of Physicians insist on a residence at certain universities and a previous diploma before they will proceed to the examination of a candidate Why then should the mitre, in defiance of these wholesome establishments interpose an unrepealed abuse, an obsolete remnant of monkish fraud and imposture, to sanction a probable depredation on the health of his Majesty s loyal subjects?

He further inquires concerning the ceremony "Did his Grace's chaplain plumb his depth in Latin? Did he sound him in Greek? or did he gauge his orthodoxy? What was the nature of the holy diploma obtained?" And although "Peter Permissus" seems to have been misinformed in regard to the previous medical training of this particular candidate, there may be a point in his blunt questions.

THE RHEUMATIC SCHOOL CHILD

IN the course of a lecture on Medical Inspection in Schools at the Day Training College of the L C C, Southampton row, London, W C, on April 14th, Dr F S Langmead pointed out that rheumatism is essentially a disease of children, the simulating symptoms at other ages being frequently due to different causes, such as arthritis and rheumatic gout Rheumatism and tuberculosis are both common diseases among school children, said the lecturer, both very liable to recur after apparent cure, and both leading to considerable crippling Among the causes of rheumatism he placed hereditary influence, damp houses, and low lying districts A chart of the distribution of the disease throughout London showed that the cases were most frequent in the neighbourhood of buried rivers, along the Thames, Wandle, and the tributaries, and along the sites of the Fleet and the East and West Bourne The proportion of girls to boys affected was about 2 to 1 The organism causing the disease gained entrance into the body of the susceptible individual chiefly through the tonsils in all probability, tonsillitis was often the precursor of acute rheumatism An investigation made by the lecturer on 2556 children of all ages had confirmed the observation that the tonsils were enlarged four times as frequently in rheumatic as in normal children Rheumatism not infrequently followed scarlet fever, which also produced sore-throat and tonsillitis Other possible modes of ingress for the infection were the throat, the nose, the naso pharynx, mouth, and perhaps also the bowel Rheumatic children formed a fairly definite type, being often bright and intelligent, though not up to standard in consequence of loss of time by illness They were excitable and nervous, worked in fits and starts, and showed want of application, as well as being fidgety and imaginative Imagination showed itself in disturbed dreams The manifestations of the disease were numerous, and included fever, swelling of joints, sweating, furred tongue, a curious sour smell, and painful and tender joints There might be pains in the limbs, as distinct from joints, in the muscles and in the bones The so called growing pains were rheumatic symptoms, showing that the foundation for future rheumatic trouble was being laid In addition there might be bleeding from the nose, pains in the pit of the stomach, increasing pallor, anæmia, chorea, and, most important of all, heart disease Statistics showed that among the physically defective in schools heart cases constituted about a third of the physically defective children and heart conditions were the chief cause of death The heart cases in our hospitals had their foundation in school life Precaution should be taken to prevent a fresh attack of rheumatism, but it was, of course, impossible to mend a damaged heart The children should be protected from cold and wet and receive medical treatment at the first manifestation of disease Chorea might occur without any other symptom of rheumatism, its differentiation from habit spasm or tick was important The symptoms of tuberculosis must be carefully distinguished from those of rheumatism, observations in this connexion should be especially directed to family history, want of gain in weight (not necessarily loss of weight), anæmia, poor appetite, tiredness, indigestion, and cough as symptomatic of tuberculosis At home restless sleep and a good deal of sweating might be noticed and should be inquired into An essential difference in the treatment of the two diseases was that while rheumatic children should be protected from the weather consumptive ones should be in the open air at all possible times

THE INVENTOR OF THE INCUBATOR.

THE death of Mr. Charles Edward Hearson on March 27th, in his seventy-fifth year, should not pass unnoticed by medical men. Mr. Hearson's name is indissolubly connected with the incubator for hatching eggs, for it was the simplicity and ingenuity of his heat regulator which brought the incubator into popular use; and when the science of bacteriology was in its infancy some 40 years ago he was asked by a leading bacteriologist to adapt his thermostat for the cultivation of micro-organisms. Since that day Hearson's incubators have been in use in every research laboratory throughout the world, while the first thermostat constructed by him still survives in working order in a London laboratory. Besides the biological incubator he designed a number of other appliances to meet the requirements of the bacteriologist. Early in the war the firm with which he was connected supplied at 12 hours' notice the apparatus required for the equipment of a special laboratory to cope with the outbreak of cerebro-spinal fever. Another popular and useful invention was the "thermostatic nurse," in extensive use for feeble and premature infants. Mr. Hearson was for eight years the representative of Camberwell on the Metropolitan Water Board, and during part of that time was chairman of the Works and Stores Committee. During his chairmanship he cut the first sod in the construction of the Island Barn reservoir and presided at the public opening of the Walton pumping-station. Little known to the public, his life greatly conduced to the advancement of medical science.

DUBLIN RADIUM INSTITUTE.

A BRIEF report by Dr. Walter C. Stevenson, of the Radium Institute of Dublin, has just been published as an appendix to the report of the Council of the Royal Dublin Society for the year ended Oct. 31st, 1919. The quantity of radium emanation issued during the year amounted to 3215·4 millicuries, and it appears that the work of the institute is carried out entirely by means of emanation tubes and applicators, no radium salt apparatus being employed. The report is in such general terms that no indications are given as to the line of treatment adopted, and the dosage and exposures employed in the various conditions—an omission which is disappointing. Much energy has been expended on the treatment of military orthopædic cases, the statement being made that radium therapy shortens the period of convalescence following gunshot wounds, and that it aids recovery by softening scar-tissue, improving the nutrition of the injured part, and exerting an analgesic effect on painful and tender scars. Two of the Government patients were treated for cancer, one suffering from advanced condition of carcinoma of the tongue. The treatment caused considerable local improvement, and enabled the patient to recover sufficiently to go home for a fortnight's leave, though he died three months later. The list of civil patients comprises 19 cases of malignant disease, most of them in so advanced a stage as to preclude any cure; the treatment was palliative, and the majority was lost sight of. One tongue case is recorded as having been seen four months after treatment, and looking almost well. The report also alludes to cases of cancer of the œsophagus and of Hodgkin's disease, in which definite, though apparently only temporary, improvement followed upon radium treatment. The report is worthy of perusal by all interested in radium therapy.

THE INCISION OF SMALL-POX PUSTULES.

Dr. C. G. S. Baronsfeather writes from Pakhoi, South China, under date Feb. 25th: We are having a serious outbreak of small-pox here just now, for, although the Chinese believe in vaccination, coolies, women, slave-girls—regarded by them as "trash"—are only vaccinated when convenient. As a result we see some serious cases, including confluent types.

One little girl in the isolation ward of the C.M.S. Hospital here seemed so miserable with a mass of pustules which were confluent in places that, remembering the misery caused in my own youngster by a single scabies pustule and the immediate relief when it was opened, I opened about 30-40 of the pustules on the face. Next day the child was remarkably better, her eyes were open, and she had ceased groaning. After waiting to assure myself that the improvement was lasting, I took a sharp-curved bistoury and opened some 30 more, in some cases the pus squirted out, and a mixture of olive and eucalyptus oils was then rubbed over the head and face. On the principle that pus under tension should always be released, and variola being a disease confined largely to the skin, death ensuing from toxic absorption, common sense suggests this method of treatment, although condemned in text-books as old-fashioned and useless. A dilute solution of iodine tincture was painted over the face in all cases during the opening days, but did not give appreciable relief.

PUBLIC HEALTH IN SOMALILAND.

No reliable information is available as to the Somali population in the Protectorate, but 300,000 is generally quoted as an approximate figure. A Census of the alien community (excluding Europeans) was taken in the three coast towns in 1911, the return then being as follows Indian, 741; Arabs, 1857; and mixed population, 798.

The general public health during 1918-19 was not as good as in previous years, the admissions to hospital showing a great increase. The influenza epidemic visited Somaliland early in November, 1918. The disease was first noticed at Berbera, whither it had doubtless come from Aden, where it had been present for some time. From Berbera it spread very rapidly throughout the Protectorate, and within a fortnight had reached all outlying stations. The epidemic had subsided by the end of December. The disease was often complicated by pneumonia, which accounted for most of the deaths recorded. It is estimated that at least 50 per cent. of the Somali population contracted the disease and that 5 per cent. died. There were no deaths among the Europeans in the Protectorate.

There was an appreciable decrease in the number of malarial cases recorded. There would appear to have been an increase of relapsing fever among the natives, and, as usual, nearly all the cases occurred at Hargeisa, where the *Ornithodorus moubata* tick is found. It is probable, however, that the apparent increase is due to the fact that greater attention is being paid to the disease and that the natives are beginning to realise the benefits of early treatment.

Excellent results have been obtained from intravenous injections of galyl or salvarsan. In many cases one injection effected a cure, although more chronic cases did not respond so readily. Hardly any cases occurred among the troops or police owing to the preventive measures taken.

An epidemic of small-pox was kept well in hand by preventive measures, but by March 31st, 1919, some 70 deaths had been recorded, mostly at Burao. A few cases of mumps were recorded during the year; a very similar disease is seen among camels in Somaliland and possibly elsewhere. The prevalent diseases are pulmonary tuberculosis, venereal diseases, chronic rheumatism, bronchitis, conjunctivitis, and ulcers. Scurvy occasionally occurs, but is very much on the decrease.

The total rainfall in Berbera in 1918 was 1·93 in.; in the interior it was considerably more than this, but up to the present it has not been practicable to keep records, except in Berbera. The highest shade temperature recorded was 114° F. in July, while the lowest was 59° in January. Away from the sea coast the climate is chiefly remarkable for its very dry character, and in the interior it is comparatively healthy throughout the year; but in the coast belt during the *Kharif* season—i.e., from June 1st to mid-September—the climatic conditions are exceedingly trying, particularly for Europeans, the effect on the nervous system being very marked. During this period terrific gales of hot sand-laden winds are prevalent and the heat is intense, the thermometer registering 105° to 115° in the shade, and seldom falling below 100° at night. During November, December, January, and February the climatic conditions at the coast greatly improve.

The general health of Europeans was not good during the year; the average number resident was only 36, and eight were invalided to England.

THE MEDICAL STUDENT'S GENEROSITY.

To the Editor of THE LANCET.

SIR,—The case of blood transfusion before operation, as cited by Dr. H. Williamson in his article in THE LANCET of April 17th, is certainly interesting and instructive, and he is to be congratulated on his successful treatment of the case. As blood transfusion is likely to become popular in the future and donors will be much in request, I beg to suggest that the students should not be permitted to be the donors for the following reasons: 1. A medical student's life, especially whilst attending hospital, is not one of the healthiest, and he requires all his reserve strength for his immediate work and for his future struggle in life. 2. It is the duty of the relations of the sick person and not the duty of the student to sacrifice themselves; the former can practically always be called upon if the emergency arises. 3. Venesection is not always such a safe and simple procedure as described in medical literature. I have seen several patients whose wounds have not healed by first intention, and whose convalescence has been tedious and prolonged. 4. It is very difficult for a student to refuse when requested to offer himself as a donor, as there is a chance of him being slighted by his seniors and scoffed at by his equals—a thing no man appreciates. 5. It is not fair to students' parents, who spend much money and care to keep their sons in good health for their future career.

I am, Sir, yours faithfully,

H. J. WALKER, F.R.C.S. Edin., M.R.C.S., L.R.C.P.

Brighton, April 18th, 1920.

ON Wednesday last Miss L. A. Francis, F.R.M.S., bacteriologist during the war to the Central London Ophthalmic Hospital, and eldest daughter of Dr. H. A. Francis, was married to Dr. J. J. Abraham, C.B.E., D.S.O., author of "The Surgeon's Log."

Dr. O. is thanked for his suggestion.

G. G. J.—The interesting table is receiving attention.

ROYAL A

THE LANCET, MAY 1, 1920.

Milroy Lectures
ON
THE HIGHER FUNGI IN RELATION TO HUMAN PATHOLOGY.

Delivered before the Royal College of Physicians of London

BY ALDO CASTELLANI, C.M.G., M.D.,
M.R.C.P. LOND.,
PHYSICIAN TO THE TROPICAL HOSPITAL (MINISTRY OF PENSIONS);
LECTURER AT THE LONDON SCHOOL OF TROPICAL MEDICINE.

LECTURE III.

Delivered on March 4th, 1920.

THE rôle played by fungi in skin diseases is of extreme importance; it suffices to bear in mind the various trichophytoses, the blastomycoses, the sporotrichoses, the mycetomas. It is interesting to note, however, that though, of course, during recent years the all-important rôle played by the higher fungi in dermatology has been amply recognised, not many decades ago most authorities denied them any importance, some considering such organisms to be merely saprophytes, and others going so far as to state that the so-called fungi found in the epidermis and the hairs did not exist, these structures merely representing a granular degeneration of the epidermial cells.

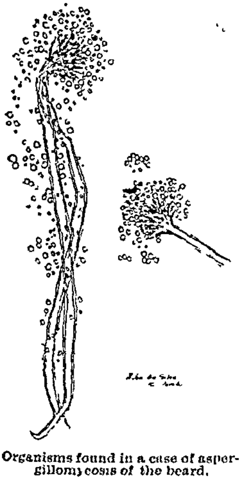
These affections may be separated to a certain extent into two groups: (1) The trichomycoses; (2) the dermatomycoses *sensu stricto*.

THE TRICHOMYCOSES.

Of this group I shall say a few words on (1) aspergillomycosis of the beard, and on (2) trichomycoses axillaris, flava, rubra, et nigra.

Aspergillomycosis of the Beard.

FIG. 1.



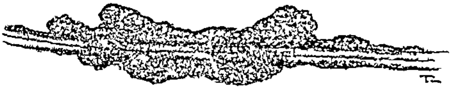
Organisms found in a case of aspergillomycosis of the beard.

Aspergillomycosis of the beard and moustache appears under the form of minute dark-greyish nodules, one or several on each individual hair. The first case I saw in Equatorial Africa in 1902 in an Indian merchant; later Chalmers and myself observed several such cases in Ceylon. The fungi found are generally of the aspergillar type (Fig. 1), but occasionally organisms of genus *Penicillium* may be seen. The simplest treatment consists, of course, in shaving, but if the patient does not wish to shave turpentine will be found useful..

Trichomycoses Axillaris, Flava, Nigra, et Rubra.

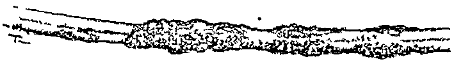
This condition has been known under the term lepothrix for many years, but until recently the various types were not differentiated and the ætiology was not completely cleared. In the large literature on the subject the affection is ascribed to the most diverse germs: Elsner describes a diplococcus, Payne, Patterson, and Pick various bacilli, among which is *B. prodigiosus*. The condition is characterised by the presence on the hairs of the axillary region (occasionally of the pubes also) of small nodular formations. These nodules may be, in my experience, yellow, or black, or red. I have therefore differentiated three varieties of the affection: Trichomycosis axillaris flava, Trichomycosis nigra (Figs. 2 and 3), Trichomycosis rubra.†

FIG. 2.



Trichomycosis axillaris flavis

FIG. 3.



Trichomycosis axillaris nigra

At times one axilla may show the variety nigra, and the other the variety rubra or flava; occasionally, the same axilla and even the same individual hair may present two varieties at the same time. In Ceylon and Southern India the three kinds—yellow, black, and red—are common; in North Africa mostly the yellow kind is seen, and at times the red; the black variety seems to be absent in Europe.

During the researches I carried out in Ceylon in 1911 on the ætiology of *Trichomycosis axillaris* I came to the following conclusions.

The yellow variety, *Trichomycosis flava*, is caused by a fungus of the genus *Nocardia* (*Streptothrix*), which I called *Nocardia tenuis*. The black variety is caused by the same nocardia plus a black pigment-producing coccus, which lives in symbiosis therewith. This coccus I succeeded in growing; the colonies after a time become jet black. I called it *Micrococcus nigrescens*. The red variety is caused by the same *Nocardia* (*N. tenuis*) plus a red pigment-producing coccus, which I cultivated on various media. The coccus gives rise to red colonies and has been further investigated by Chalmers and O'Connell, who have paid me the compliment of giving it my name. Macfie has recently described a subvariety of Trichomycosis rubra: *T. fusca*.

Trichomycosis axillaris is an affection of little or no importance, but I have known European ladies in the tropics greatly distressed by it, as when they wear a low-necked dress the disfiguring red or black patches in the axillary regions are quite visible. It is a curious fact also that natives when affected with trichomycosis seem to regard it with disgust and readily seek treatment, and Chalmers and O'Connell have recently brought forward the suggestion that the general custom of shaving the axillary hair among certain native tribes may have originated in their profound dislike of this complaint. The treatment which I found most successful in Ceylon, apart, of course, from shaving, was dabbing the hair two or three times daily with a 1 per cent. alcoholic solution of formalin, with the application of sulphur ointment at night.

THE DERMATOMYCOSES SENSU STRICTO.

As regards the second group I propose touching briefly on the following: (1) tinea flava, (2) tinea nigra, (3) cryptococcosis epidermica, (4) acladiosis, (5) blastomycosis, (6) dhobie itch (tinea cruris), and (7) tinea imbricata.

Tinea Flava.

Ninety per cent. of the natives of the low country in Ceylon are more or less affected with this mycosis. It generally starts at a very early age, spreading slowly, and seldom, if ever, disappears completely. Variously shaped bright yellow spots are seen most commonly on the neck and chest, but any part of the body may be affected. In Singhalese poetical literature reference is often made to the tiny canary-coloured beauty spots present on the face of Ceylon young women. These spots, so much admired by native poets, who have coined a special poetical expression for them ("gomera"), are in reality merely minute patches of tinea flava, and are produced by the fungus I described under the name of *Malassezia tropica.* Sometimes all the patches of tinea flava coalesce together, giving rise to the diffuse form of the disease. Occasionally one is surprised to see a Singhalese or Tamil native with the face, chest, and trunk of much lighter colour than other natives; on closer examination it will often be found that this apparent lighter colour of the skin is merely due to a diffuse form of a very light variety of tinea flava. Tinea flava was considered to be, until recent years, identical with pityriasis versicolor of temperate climates. I separated it for the following reasons: (1) Tinea flava affects the face more frequently than any other region of the body; (2) it is extremely chronic, developing in early childhood and lasting for life; (3) it is most difficult to cure; (4) the fungus, which I called *Malassezia tropica,* seems to have almost a permanent disturbing action on the pigmentation processes of the skin, as even when the fungus has been destroyed the patches remain discoloured for a very long time, months and years, though they may in the end become again normally pigmented.

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* Lectures I. and II. appeared in THE LANCET of April 17th (p. 847) and 24th (p. 895), 1920, respectively.

† See Castellani and Chalmers's Manual of Tropical Medicine, p. 2101.

The treatment, as I have already stated, is most difficult; turpentine is at times useful, and on covered parts of the body a chrysophanic ointment may be used.

Tinea Nigra.

This tropical dermatomycosis, fairly common in natives, is characterised by the presence of jet-black patches due to a fungus of the genus *Cladosporium* which I called *C. mansoni* in honour of Sir Patrick Manson. This fungus grows on glucose and maltose media, giving rise to black colonies. It may attack Europeans, as shown by the following case. A European medical man went to Burma for a pleasure trip. On coming back to Ceylon he noticed a roundish, very slightly elevated, black spot on the palm of his left hand. This spot slowly increased in size for two months, becoming the size of a sixpenny-piece. A single application of formalin made it disappear, but three months later it reappeared. A second application of formalin cured the condition permanently. From the patch, before treatment, cultures were made and a cladosporium isolated identical to that found in native cases.

Cryptococcosis Epidermica.

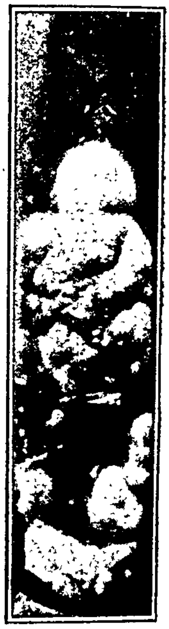
Many years ago I noticed on the skin of one of my bungalow servants several brownish patches, which looked very much like dirt. He told me, however, that they did not disappear on using soap. I made a scraping and saw that these patches consisted of a large number of budding cells which I believed to be saccharomyces. I found the same patches, not only in other natives, but also in Europeans, especially on the chest and arms, and called the condition saccharomycosis epidermica, which term I changed later into the more correct designation cryptococcosis epidermica. I did not succeed in growing the fungus. Recently Chalmers and others have confirmed my findings in the Sudan and North Africa, but the organism has not yet been cultivated. As to treatment, ordinary soap will not remove the patches; sand soap occasionally does. In obstinate cases the patches may be touched with an alcoholic solution of salicylic acid, and then a salicylic-sulphur ointment may be applied.

Acladiosis.

This dermatomycosis, described by me some years ago, is caused by a fungus of the genus *Acladium.* I grew the fungus from the lesions and sent cultures to Professor Pinoy, of the Paris Pasteur Institute, who kindly described it botanically, and honoured me by calling it after my name. I quote his description.

"The growth on artificial media (such as carrot, potato, glucose-agar) consists of many small roundish masses (Fig. 4) which later on may coalesce, and are covered by spiculated formations, giving them a prickly appearance, and consisting of erect, straight filaments, parallel to each other, or at times interlacing. These filaments are approximately 2 microns in diameter, and carry laterally pseudoconidia of variable shape, cylindriform, pyriform, or spherical, attenuated in size at their points of insertion. Most of these pseudoconidia are 4 microns in length, and have a breadth of 3 microns. This type of fructification recalls the type *Acladium,* described by Bodin in certain species of the genus *Trichophyton* (Malmeten, 1848). These pseudo-conidia become detached and then develop by sprouting, and mycelial filaments are formed. Certain filaments produce spherical chlamydospores arranged in small strings, as found in certain fungi of the genus *Fusarium.* These small chains of chlamydospores are very frequently terminal, the dimensions being variable —8-10 microns."

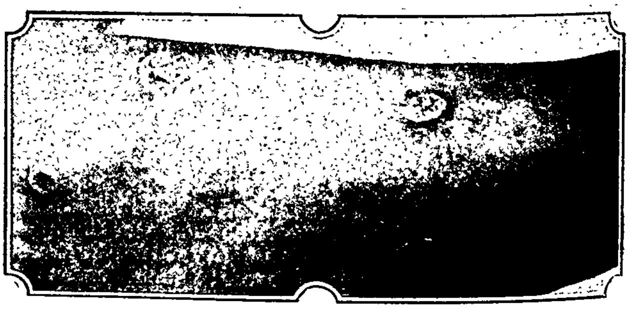
FIG. 4.



Growth of *Acladium castellanii,* Pinoy.

The affection is observed in Ceylon and the Federated Malay States, and during the war I found a case in Macedonia. Clinically, this dermatosis is very characteristic; in a well-marked case ulcerative lesions are present all over the body. The ulcers (Fig. 5) are roundish or oval, sharply defined, and with a red granulating fundus. There is often a fairly abundant purulent secretion, which dries up in thick bright yellow crusts covering the ulcers. Occasionally gummatous nodules and furuncle-like lesions are seen. The course of the disease is very long, and generally there is very little or no tendency to spontaneous cure. Potassium iodide when given in full doses is generally successful.

FIG. 5.



A case of acladiosis, showing characteristic roundish or oval ulcers, with sharply defined edges and a granulating fundus.

Blastomycosis.

The term blastomycosis is generally applied to affections due to fungi of the genera *Saccharomyces, Cryptococcus, Monilia, Oidium,* and *Coccidioides.* The clinical appearance may greatly vary; the cases I have seen may be classified into three principal groups: 1. The cutaneous type. 2. The muco-cutaneous type. 3. The gluteal blastomycosis.

1. *Cutaneous type.*—This type is characterised by verrucose patches with minute abscesses, is quite common in Ceylon and other tropical countries, and occasionally cases are seen also in temperate climates.

2. *Muco-cutaneous type.*—In this type the disease attacks not only the skin, but also the mucosæ, principally the oral mucosa and the pharynx, giving rise to numerous small verrucoid papillomatous or frambœsiform patches, which later may ulcerate. This type is common in South America, where it has been investigated by Splendore and others, but a very similar type is found also in Ceylon and other tropical and subtropical countries. Three weeks ago I saw a demobilised officer with lesions on the left angle of the

mouth, portions of the oral mucosa and of the tongue, which closely resembled a syphilide. The lesions had made their appearance in Egypt. The patient denied ever having contracted syphilis; moreover, in Egypt his blood was examined for a Wassermann three times, always with negative result. Notwithstanding the negative Wassermann the patient had several salvarsan injections and a long course of mercurial treatment without any benefit. In scrapings from the lesions I found a few yeast-like bodies, and culturally I have grown a fungus which resembles more a monilia than a saccharomyces or a cryptococcus. Under treatment by iodide of potassium the lesions are already very much better.

3. *Gluteal blastomycosis.*—This variety has been described by Kartulis in Egypt, and I have seen cases in Ceylon. The gluteal regions present a diffuse induration, and are riddled with numerous openings from which a thin purulent liquid exudes. Fungi of the genus *Saccharomyces* or *Monilia* are generally isolated from the pus.

As regards the prognosis, this is on the whole favourable in the cutaneous type provided an appropriate treatment is carried out—much less favourable in the muco-cutaneous and in the gluteal varieties. It must also be remembered that occasionally the organisms enter the general circulation and give rise to a pyæmia-like fever. Occasionally, in fact, one comes across cases of blastomycetic septicæmia without any skin lesion, and these cases, as a rule, terminate fatally.

Dhobie Itch.

I know of very few Europeans who, after one or two years residence in the tropics, have not contracted that most distressing and intensely itching condition of the inguino-scrotal region, which is known all over the East as dhobie itch, from the popular belief that it is acquired from underclothing and linen contaminated while being washed by the dhobie (native laundryman).

What is dhobie itch? It is in reality the old eczema marginatum described by Hebra. The history of the disease is briefly the following: About the middle of last century Hebra in Vienna described eczema marginatum of the inguinal regions. Later trichophyton-like fungi were found by various observers, and the condition was considered to be an inguinal localisation of tinea corporis, and the fungus was believed to be the same as *Trichophyton tonsurans*. In Ceylon in 1905, having found a fungus somewhat different from those observed in the usual types of tinea corporis, I suggested that the condition should be definitely separated from this disease. This fungus was characterised by its neglect to attack the hair or hair follicles and by the colour of its colonies on maltose or glucose-agar; these are of a peculiar lemon-yellow or orange-yellow colour. I called it *Tricophyton cruris*. In 1907 the same fungus was found by Sabouraud in France and called *Epidermophyton inguinale*. I sent cultures of the Ceylon strain both to Sabouraud and Pinoy, and they concluded that the French strains and the Ceylon strains were identical. According to the laws of nomenclature the correct name is *Epidermophyton cruris* and not *Epidermophyton inguinale*, as when a fungus is moved from one genus into another it does not lose its specific designation. As is well known, the generic designation of an organism may be changed, but the specific designation cannot be altered. In 1909 I found that certain cases of dhobie itch were due to a different epidermophyton (*E. rubrum*), and later I observed that a few cases were due to a true trichophyton (*T. nodoformans*). There are therefore three species of fungi which may give rise to dhobie itch—*E. cruris*, *E. rubrum*, and *T. nodoformans*.

1. *E. cruris*, as already stated, is characterised by its lemon-yellow or orange-yellow colonies.

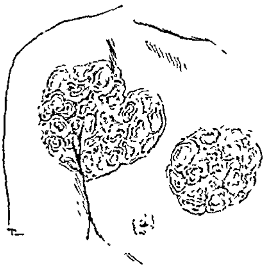
2. *E. rubrum*, which I described in 1909, is characterised by the deep-red pigmentation on glucose-agar.

3. *Tricophyton nodoformans* is characterised by the fact that the surface growth is white and powdery, while the submerged portion is of a brick-red colour, which, however, disappears after repeated transplantations. It is interesting to note that each species gives rise to a slightly different type of dhobie itch. *E. cruris* causes the common festooned variety identical with eczema marginatum of Hebra. *E. rubrum* causes an eczematoid-like variety; the edge is less raised and is made up of numerous small, close-set papules covered at times by minute bloody crusts. It has a great tendency to spread from the scroto-inguinal region to any part of the body and may, in fact, begin on practically any region. *T. nodoformans* induces an eruption with a very thick nodular margin, and the fungus may attack the hair follicles.

One word as to prognosis and treatment. An apparent cure is quite easily achieved, but a true cure is much more difficult. In patients who had dhobie itch in the tropics and have settled in Europe the infection may last for very many years, remaining dormant in winter, but breaking out regularly every summer; the best treatment consists, in my experience, in a salicylic-sulphur ointment and in very obstinate cases chrysophanic acid may be used.

Tinea Imbricata.

FIG. 6.



Tinea imbricata

This dermatomycosis, which is extremely common and of great practical importance in certain tropical countries, was first described by Dampier in his book, "A Voyage Round the World," in 1789. In Alibert's "Atlas of Skin Diseases," published in 1832, there is a very good illustration depicting the disease. In 1874 Tilbury Fox gave a description of the complaint under the term Tokelau ringworm. He detected in scales a filamentous fungus and considered it to be identical with the fungus of European ringworm. From that time discussion began and continued for many years on the subject, whether the disease was a separate entity or merely European ringworm modified by the different climatic conditions. The great majority of the European authorities, who, however, had no personal experience of the malady, were opposed to considering the disease a separate one, while the medical men practising in the tropics generally believed it to be a different affection from ringworm. Very valuable researches were carried out by McGregor in 1870 and Coniger in 1871, but Manson's researches in China during the period 1879–82 are by far the most important. He described the eruption in a masterly manner, and first introduced the very appropriate name of tinea imbricata. Moreover, he gave a very good microscopical description of the fungus, although, as might be expected, using the technique of that time, he did not succeed in cultivating it. He considered it to be a non-cultivable trichophyton for which Blanchard suggested the name *T. concentricum*. In recent years the malady has been generally considered to be a form of aspergillosis, especially after the well-known researches of Tribondeau, Wehner, and many other observers. Tribondeau described fructifications somewhat similar to those of an aspergillus and created for the fungus the genus *Lepidophyton*. Wehner described it as a true aspergillus (*Aspergillus tokelau*). I investigated the malady in Ceylon, and I think I may venture to say that I succeeded in proving that these aspergillus-like fungi have nothing to do with the disease, and that when they are present in the scales, as they often are, are merely saprophytes or contaminations. By using a special technique I succeeded in growing the fungi which I consider to be the true causative agents of the affection. I created for them the genus *Endodermophyton*, of which there are at least four species:

(1) *E. indicum*, (2) *E. tropicale*, (3) *E. concentricum*, and (4) *E. mansoni*. The fungi belonging to the genus *Endodermophyton* by their growth between the superficial and deep layers of the epidermis, form an interlacing felt of mycelium, which detaches the cornual and granular layers from the rete Malpighi. They do not invade the hair follicles and do not cause suppuration. Their cultures are similar to those of the genus *Achorion*. The difficulty in growing such fungi artificially is explained by the fact that they do not grow on solid media direct from the scales. These, after being treated with alcohol from five to ten minutes, must be placed in glucose-broth tubes, one scale in each tube. Most of the tubes become contaminated with bacteria, but in those which remain clear after a time (five to ten days) a few delicate short mycelial filaments will be seen originating from the scales. The growth slowly increases until after a few weeks it takes the appearance of a small white fluffy mass with a dark spot (the scale) in the centre. The fungi can then be transplanted on solid sugar media, on which they then will grow quite well and from which they can be subcultivated indefinitely. The species may be differentiated as follows:—

(1) *E. indicum*—glucose-agar cultures, deep orange or pinkish or red; white duvet often present.

(2) *E. tropicale*—glucose-agar cultures, amber-coloured; duvet absent or present only in very slight amount.

(3) *E. concentricum*—glucose-agar cultures after some weeks become black.

(4) *E. mansoni*—black pigmentation very rapid.

By inoculating cultures of the first two species I have succeeded in experimentally reproducing the disease in volunteer natives.

As to the predisposing causes as regards age, in my experience young adults are mostly affected, but children and very old people may contract it. Men are much more frequently infected than women. It is doubtful whether there is any racial disposition. In Fiji it is said, however, that the immigrant Tongas rarely contract the malady, while the indigenous Fijians are extremely prone to it. Some authorities believe that this relative immunity is due to the habit the Tongas have of anointing their skin.

As regards climatological influences, Manson has made the interesting observation that tinea imbricata is rife especially in those tropical countries and districts in which the climatic conditions are favourable for the growth of the coco-nut tree. I can confirm Manson's observations. In Ceylon tinea imbricata is not very common, but the cases one sees generally come from the coco-nut districts. There is no doubt that a hot, moist, equable climate is the most suitable for the fungi of tinea imbricata, as it is the most suitable for the growth of the coco-nut tree.

CLINICAL SYMPTOMS, DIAGNOSIS, AND PROGNOSIS OF TINEA IMBRICATA.

The development of the eruption is most interesting. At the very beginning one or several small roundish or oval dark-brown very small spots appear, generally on the arms, chest, or back. After a short time each brownish spot splits in the centre, and in this way a ring of flaky large scales attached at the periphery is formed; this scaly ring expands peripherally, and, while it does so, another brownish spot appears in the centre on the same site as the first brown spot; this new brown patch also breaks in the centre, and in this way a second ring scaly ring is formed, which expands towards the periphery inside the first ring; again in the centre a dark patch appears which splits, and a third ring is formed inside the second; and so on until a number of scaly rings develop. Sir Patrick Manson has aptly compared this development of concentric rings to the concentric ripples produced by a pebble thrown into a pool of water, and when the eruption starts from many points, as is often the case, owing to auto-inoculation, it is as if a shower of pebbles had fallen in the pond and many systems of spreading rings are produced which intersect each other. The scales are flaky, tissue-paper-like, large, up to half an inch in length, dry, and of a dirty-greyish or brownish colour. The fungus never invades the hair follicles nor, according to some authorities, the nails. I must say, however, that in my experience the nails are often affected, becoming discoloured and brittle, and this has also been Manson's experience. The eruption has not much effect on the general health of the patient, but the pruritus it induces is really terrible; the native patients refuse to do any work and remain in their compounds, where they can be seen squatting or lying down and scratching their bodies the whole day long. I have noticed that the itching is greatly increased by certain diets; for instance, the dry fish diet often given in Ceylon hospitals makes the pruritus absolutely unbearable.

The clinical picture of the disease is most characteristic, even when the eruption is of the diffuse type. The large, dry, tissue-paper-like scales, overlapping each other like tiles on a roof, are quite typical, but the diagnosis is certainly very difficult to the newly arrived European medical man, who may never have heard of the disease. On superficial examination the malady does not strike one as being of epiphytic origin, and the cases I generally had in the Colombo Clinic were often diagnosed by visitors—and naturally so—as cases of ichthyosis or of pityriasis rubra; it is, in fact, interesting to note that one of the many synonyms of this malady is "tropical ichthyosis." Of course, the microscopical examination of the scales will reveal the presence of an enormous number of mycelial filaments, and this will clear the diagnosis at once.

The disease, as I have already stated, has not at first a serious influence on the health of the patient, but the affection is chronic, and after a time the patient not rarely becomes anæmic, emaciated, and a nervous wreck owing to the continuous pruritus and loss of sleep. At any rate, the patient is not fit for any work, and this is of great practical importance, as it tends to decrease the labour force on low-country estates.

One word with regard to treatment. The disease never shows any tendency to spontaneous cure, and its treatment is most difficult, as every tropical practitioner knows. It is easy enough to obtain a temporary improvement and even a disappearance of the eruption; but as a rule a few days after discontinuing the treatment the eruption starts afresh.

In the Colombo Clinic I tried experimentally the most different drugs and ointments, and came to the conclusion that the best routine treatment is by resorcin dissolved in tr. benzoin. co. (resorcin ʒii, tr. benz. co. ad ℥i).

It is interesting to note that resorcin in ointment or in alcoholic solution has practically no action, and that tr. benzoin. co. alone has also practically no action, but when the resorcin is dissolved in the tincture good results are obtained.

PORTSMOUTH MATERNITY HOSPITAL.—A municipal maternity hospital was opened by the Mayor of Portsmouth on April 19th. A large and convenient house has been adapted for the purpose, providing accommodation for 12 patients. It is hoped eventually to have a much larger hospital. There is no intention of competing with existing nursing homes, as the new institution is for poor women who are unable to arrange for adequate help in their own homes. A fee of 30*s.* for a fortnight will be charged.

PSYCHO-NEUROLOGICAL SOCIETY, LANCASTER-GATE, W.—A clinical meeting was held on April 22nd, Dr. H. E. Davison being in the chair. The following cases were demonstrated. Dr. C. Worster-Drought: 1. Case of concussion of the spinal cord in the cervical region with Brown-Séquard syndrome and injury to the sixth and seventh left cervical nerve-roots. 2. Case of fracture-dislocation of the spine in the lower dorsal region with partial Brown-Séquard syndrome. 3. Case of proximal myopathy (Landouzy-Dejerine type). 4. Case of aphasia, agraphia, and alexia with right homonymous hemianopia in a man aged 30. 5. Case of early tabes dorsalis with double intention tremor. Dr. E. Danvers-Atkinson: Case of myotonia congenita. Dr. P. Bousfield: Case of motor aphasia and agraphia due to cerebral hæmorrhage in a young man.

THE PELLAGRA OUTBREAK IN EGYPT

I.—PELLAGRA AMONG OTTOMAN PRISONERS OF WAR.

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IN a previous paper[1] I have detailed certain remarkable features occurring in Egypt among Ottoman prisoners of war during the summer, autumn, and winter of 1916. The appearances then shown I correlated under the heading "War Œdema" in order to bring this outbreak into line with others of a similar nature described in Europe during the recent war, and in other parts of the world at different times. In the paper referred to I showed that a few of the war œdema cases eventually developed symptoms of pellagra, as did also a considerable number of other prisoners who had not come under previous observation. In the winter 1916–17 the number of pellagra cases was large enough to warrant the use of the term "epidemic." This epidemic forms the subject of the present paper.

Incidence and Clinical Features of Pellagra.

Pellagra in this country is a comparatively rare disease. Small outbreaks have been described in asylums and similar institutions, while here and there in England and Scotland isolated cases have been described (Box,[2] Hammond,[3] Sambon,[4] and others). On the principle "whosoever hath not, from him shall be taken even that which he seemeth to have," the rarity of the disease increases its rarity because, contrary to what is usually taught, pellagra is extremely difficult to diagnose and often overlooked unless the possibility of its occurrence be kept in mind. It seems fitting, therefore, to increase the interest of this paper for English readers by the shortest possible outline of the disease as it is commonly seen.

Osler[5] defines pellagra as "a disorder of metabolism with periodical manifestations characterised by gastro intestinal disturbances, skin lesions, and a tendency to changes in the nervous system." This disease was first described by Cazal in Spain about 1762. The name then given to it was Mal de la Rosa In 1771 Frapolli, working in Italy, described the same condition under the name pellagra, or rough skin. Apparently pellagra first made its appearance in Europe about 1720, a date coinciding with that of the introduction of corn planting; this is a fact of some significance. Since then the disease has died out in some countries only to appear, or, perhaps, only to be recognised, in others It is now prevalent in Italy, Roumania, and the neighbouring States In Egypt Sandwith first reported cases in 1893, and it is now endemic in that country. In 1908 pellagra was first recognised in the Southern States of America as the same disease found in Italy. Stannus,[6] working in Nyasaland, reported cases there in 1910 And so the area of endemic pellagra grows, and it is more than probable that with increased knowledge of the disease this area will become still wider As regards the prevalence of pellagra in the countries named above, suffice it to say, that "there are probably 100,000 cases in Italy and 50,000 in Roumania" (Osler[7]). Also that in the last three months of 1914, in one State alone of the U.S A (Mississippi) there were reported 1845 cases (Niles[8]) Naturally, in such countries pellagra has become of supreme importance from a public health point of view.

The chief clinical features of pellagra can be summarised as follows.

It occurs chiefly, though not entirely, in the poorer classes, and for the most part in rural districts The disease begins in the spring or autumn, disappears after a short time, and reappears at a corresponding time the following year This periodicity may show itself for many years in succession Each attack tends to leave the patient in a worse condition than before Finally, these cases drift into asylums, develop some organic disease of the spinal cord, or die during one of the attacks, either from cachexia or from some intercurrent disease Of course, many cases may recover. The onset is characterised by general malaise with various morbid sensations referred to the digestive tract, soon followed by severe diarrhœa, often dysenteric in type, and most intractable Other derangements of the tract, such as sore mouth and tongue, anorexia, and vomiting, are usually associated with the diarrhœa The skin manifestations, without which the disease would never be recognised, soon make their appearance The rash begins as an ordinary sunburn on the exposed parts of the body, especially the hands and face, and its distribution usually shows the most perfect symmetry. At the onset of the rash burning is complained of in the areas affected Following the erythema appear marked pigmentation of the skin and desquamation In some cases vesicles and even bullæ may arise, a condition to which the name "wet pellagra" is given, always a sign of grave import Frequently the desquamating areas crack and deep fissuring of the surface may occur. After the attack is over the skin may return to normal, may hypertrophy, or may atrophy, leaving a condition resembling the skin of an old man in its papery texture and loss of elasticity.

Associated with the skin and gastro intestinal troubles there is great weakness and emaciation, together with nervous symptoms, the most common of which are great depression of spirits and psychasthenia An acute type of the disease is recognised, to which the term typhoid pellagra is applied

With this brief account of the history and clinical features of the disease, we may now turn to the specific outbreak under consideration, leaving the ætiology of pellagra to be dealt with subsequently. The work is divided into two periods: (1) from September, 1916, to June, 1917, after which I was unfortunately unable to carry out further investigations, and (2) during the winter of 1917–18 and spring of 1918, which I have studied from notes given to me by my friend and colleague, Dr J. I Enright.

The First Period of the Outbreak

This comprises work done on 64 cases. Firstly, should be cited a few facts bearing upon the ætiology of pellagra, a discussion of these being left to the section dealing with causation

Race —Turks, 46, Arabs, 8, Kurds, 5, unknown, 5

Native place —Scattered all over Turkey in Europe and Asia, Palestine, &c

Average period of war service —About 3 years

Place of capture —The Hedjaz, 41, Canal Zone, 18, Dardanelles, 4, Mesopotamia, 1

Date of capture —The Hedjaz cases were all captured at the fall of the three towns, Mecca, Jedda, and Taif, about June and July, 1916 The Dardanelles prisoners were captured in 1915, while those in the Canal Zone were captured for the most part in and about El Arish and Katia also in the summer of 1916 It will be seen that the prisoners from the Dardanelles had been in our hands nearly two years

Disposal of prisoners after capture —Some of these came direct to No 2 Prisoners of War Hospital, Cairo Others were sent to one of the two big prison camps in the Cairo district—viz, Heliopolis and Maadi Thirty two cases were analysed as regards their disposal Of these 14 were sent to Heliopolis Camp, 13 to Maadi camp, and 5 came direct to hospital

Incidence of pellagra —This point is extremely difficult to determine I carried out many and somewhat laborious inspections with a view to discovering, if possible, what percentage of Turkish prisoners at that time were pellagrins. Firstly I turned my attention to the camp at Heliopolis. Here I examined 3823 prisoners, of whom 24 were certainly pellagrins and 21 were doubtful. These inspections were performed in March, 1917. During the same month I visited the Red Crescent Hospital in Cairo. Here I examined 100 cases, of which not one showed any signs of pellagra. The Egyptian medical officer in charge told me that he had never seen a case in that hospital, though he admitted that during the summer of 1916 many cases had died of intractable diarrhœa.

In April, 1917, by the courtesy of the authorities, I was permitted to visit the Turkish women and children prisoners, numbering about 470. They had been captured in the Hedjaz during the summer of 1916 and all had suffered the horrors of siege. They ranged in social position from wives of superior officers to maidservants. I found no evidence of pellagra except that one case showed slightly suspicious signs.

It will be seen, therefore, that there were about 64 pellagrins in the winter 1916–17 out of some 4400 prisoners examined, a percentage of about 1·4.

The question whether this outbreak was merely a seasonal recurrence or the disease appearing for the first time is difficult to decide. In attempting to get a true history of his case from a Turk one feels almost sympathetic towards the gentlemen whose life-work it is to discover, if possible, the truth concerning our incomes. At best, in either case a good guess is the most that can be hoped for. In our country, too, a man's ignorance acts as a check upon his gift for telling lies, but with a Turk it is otherwise. Nevertheless, the statements of prisoners, in my opinion, are of some value when repeated cross-examinations are made at different times, and if when any discrepancies in the story arise the whole history is dismissed.

At the beginning of the outbreak I showed a few of the cases to one or two experienced observers, who gave it as their opinion that they were chronic pellagrins. Nevertheless, after examining many cases I am convinced that the majority were seen in their first attack. My reasons are as follows: (1) Out of the 64 cases 44 were positive that they had never had the condition before, 8 gave a doubtful history, 7 for one reason or another could give no history at all, while 5 were certain that they had had the condition once every year for some years. These statements were borne out by two Turkish officers and by an Armenian medical officer who had been attached to the Turkish Army. (2) All the cases had been soldiers engaged in an arduous campaign. Their average service was at least three years, some had been in the army seven years or longer, and chronic pellagrins could hardly support the strain of military life. (3) The fact that none of the women prisoners showed the disease, coupled with the fact that the disease is commoner in women than men, is very remarkable if pellagra had been endemic in the localities where they and the soldiers had lived. (4) The fact that two other epidemics occurred in Egypt during this war among communities that had not had the disease previously. I refer to the outbreaks at the Armenian Refugee Camp, Port Said, and at Cairo among German prisoners of war. (5) Chronic pellagrins usually show symptoms and signs pointing to organic disease of the nervous system. Organic nerve disease was extremely rare in this outbreak.

At this point I should like briefly to quote two cases, the first in favour of my view and the second one of the five cases which gave a clear history of previous attacks.

CASE 1.—Pte. S. K., 27 years of age. An Arab; previous occupation—butcher. Six years army service, all in the Hedjaz. Taken prisoner in Jedda, June, 1916. Three days after capture began to have diarrhœa, followed by malaria; admitted to hospital at Cairo August 8th, 1916, with malignant malaria and very severe anæmia. Marked œdema appeared, which lasted two months, and the patient nearly died. He gradually recovered and was discharged perfectly fit on Jan. 22nd, 1917. In February, 1917, I found the man at Heliopolis camp with a typical pellagrous rash on hands and face. This patient affirmed that he had never had the disease before, and a sergeant who had been in the same company with him for three years confirmed the story. This sergeant was chief Turkish orderly in the pellagra ward and, besides having a good knowledge of the disease, was an extremely intelligent man.

CASE 2.—Pte. H. A., 27 years of age. A Kurd; previous occupation—fellah. Three years service, all in the Hedjaz. This man states that he has had the same condition for the last eight years at this time of year. The condition lasts about two months, the attack beginning with itching of the skin and then the hands become a "blood-coloured red." After about seven days the skin fissures and cracks. Diarrhœa with blood and mucus is present at these times, also headache, night blindness, indigestion, pyrosis, nausea, and vomiting. This is a most perfect history of the disease, and he repeated it on more than one occasion without a slip. For eight years he had been getting thinner and weaker. This attack was the last, for he died on March 26th, 1917.

The onset of the attack.—Most of the cases had suffered from diarrhœa for a long period before the diagnosis of pellagra was made. It is only when the rash appears that the nature of the condition is made clear. The month of January, 1917, as the following table shows, was the most favourable time for the appearance of the rash.

1916		1917				
Nov.	Dec.	Jan.	Feb.	March	April	Unknown.
1	5	23	12	10	4	9

It may be interesting to note here the incidence of other diseases previous to the appearance of the rash. The figures are as follows: Malaria only, 1; dysentery only, 25; malaria and dysentery together, 8; neither malaria nor dysentery, 30.

The gastro-intestinal system.—The tongue in pellagra, as is well known, shows typical features, the edges and tip are bright red, while the papillæ stand out as little red dots. Later atrophy of the mucous membrane may occur. This condition was noted in 29 of the 64 cases. Burning in the mouth and especially in the œsophagus were common complaints, though the cause of the latter is obscure. The appetite was, as a rule, poor, but how much of this symptom was due to pellagra and how much to the extraordinary outlook of the Turk upon questions of disease and death it is impossible to say.

Diarrhœa, of course, was a prominent symptom, and it occurred constantly in the severe cases, usually with blood and mucus, though in the mild cases I was surprised to note its absence. Out of the 64 cases 24 had dysentery, 19 had diarrhœa without blood or mucus, and 21 had no diarrhœa at all.

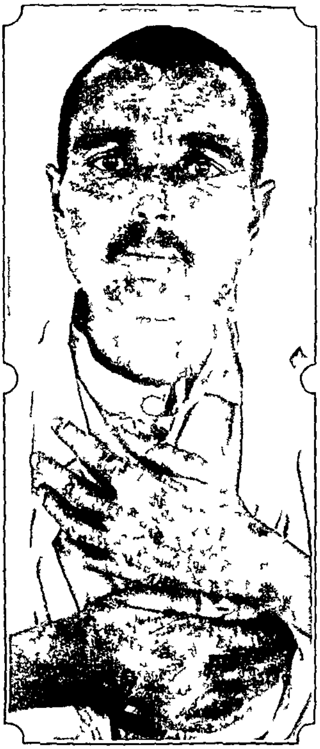
One very interesting feature remarked was the frequency of fæcal incontinence, the urine being held normally. This at first was accounted for by finding post mortem marked ulceration of the rectum extending even down to and involving the anal ring. That this is not the only explanation is proved by three cases, all showing incontinence, of which two showed normal intestines post mortem, while the third did not die and never had any blood in the motions.

Dr. Enright[9] has described a parotitis in pellagra. I noted only one case in my series and here the condition was unilateral.

Many observers have remarked how often pellagra is associated with intestinal parasites, especially the *Ankylostoma duodenale*. This parasite was never found in the post-mortem examinations, though always looked for, nor were its ova ever found in the stools. Dr. Manson-Bahr and myself made careful examinations of the stools in 39 cases in search of the ova of common parasites, our results being as follows: 28 nil, 2 lamblia cysts, 2 ascaris, 3 *Amœba coli* cysts, 1 *Tænia solium*, 2 *Trichocephalus dispar*, 1 *Oxyuris vermicularis*.

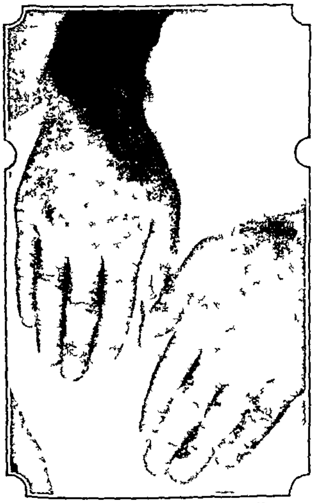
Skin lesions.—There can be no doubt but that the sun's rays play an important part in the production of the pellagra rash. This is evidenced by the frequency of the skin manifestations on the exposed areas, my figures for which are as follows: Out of the 64 cases 63 showed the rash on the hands, 30 on the feet (in the exposed part of the dorsum between the distal end of

FIG 1



Typical severe pellagrous eruption on face and hands Notice the perfect symmetry of the rash and the fissuring of the hands

FIG 2



To show desquamation of skin in pellagra

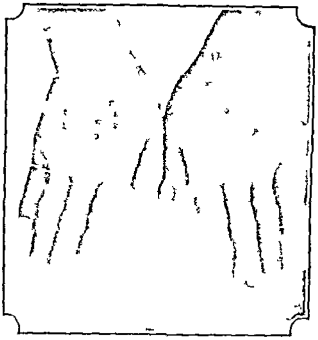
the *turned up* trouser and the proximal end of the Turkish slipper) (see Fig 4), 22 on the face, 16 on the neck 8 on the chest (where exposed), and 3 on the ears Bilateral symmetry was usually perfect

Though the sun's rays play an important part in the production of the rash, I was never able to make any skin changes appear at will, even after repeated trials with one arm bare or wearing a glove on one hand only I cannot account for this failure Pressure areas also show definite changes in the overlying skin, which becomes rough, thick, and deeply pigmented The commonest situations for these changes are the external malleoli, sacrum, knees, and elbows Thirty five of the cases showed these signs, and they lasted long after all other typical appearances had disappeared Many of the cases showed a curious fine branny desquamation over the body generally, even in those situations where no rash had been present One case showed a pellagrous eruption on the scrotum—interesting because this was the site where Goldberger's artificially produced pellagrins first showed the rash [10]

Lastly, under this heading I wish to describe a condition to which only one reference could be found (Marie [11]) In eight of the cases there was noted a peculiar seborrhœic condition, chiefly round the alæ nasi, sometimes scattered over the whole face (see Fig 5) In appearance this condition was likened to small sulphur granules raised above the surface of the skin This was not found among non pellagrous Turks

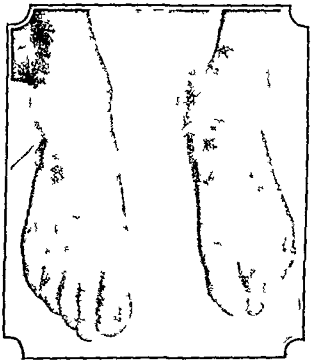
Nervous system—Of the 64 cases 50 were subjected to a routine neurological examination It was found that while hysterical stigmata were common, organic disease of the nervous system only occurred in 4 cases One became demented, one developed delusional insanity two showed evidence of pyramidal tract lesions, associated in one case with double optic neuritis going on to atrophy No evidences of central neuritis were forthcoming A slow lateral nystagmus was noted in a few cases, while night blindness was complained of only once Various paræsthesiæ, together with tenderness in the muscles of the back and legs, were frequent

FIG 3



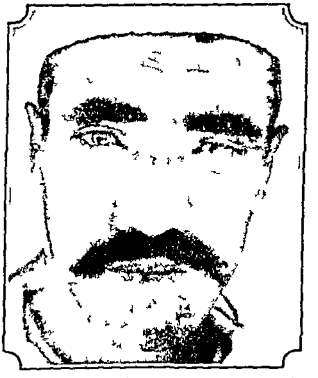
Showing more chronic stage of the rash—viz pigmentation and thickening of the epidermis

FIG 4



The rash in pellagra on dorsum of feet Notice that the rash is only seen on the area exposed between distal end of trouser and proximal end of Turkish slipper

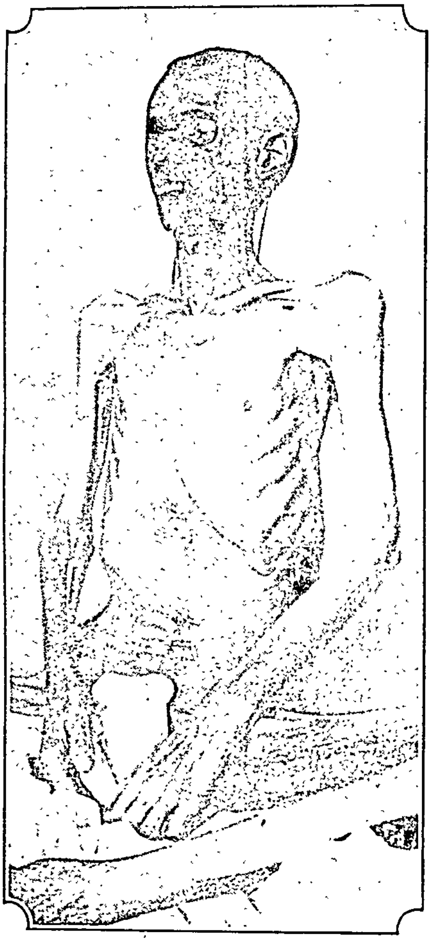
FIG 5



Showing a somewhat rare skin change in pellagra—viz seborrhœa of the face especially round the nose

Without doubt the most distinctive sign was a profound melancholy of a temporary nature associated with a mask-like face, and even sometimes with a Parkinsonian gait. Vertigo and sleeplessness were troublesome symptoms. Emaciation was very marked in the fatal cases (see Fig. 6).

FIG. 6.



Photograph taken post mortem to show the great emaciation in pellagra.

Œdema occurring in pellagrins.—From a study of the literature it appears that œdema in pellagra is a symptom of the greatest rarity. I can only find one reference bearing on the subject—Külz.[12] As will be seen, however, from the following extracts from my recent paper on war œdema,[1] this condition was quite common in the epidemic now under discussion.

Incidence of œdema.—Œdema observed, 36; œdema in history only, 7; no œdema observed or mentioned in history, 21.

Extent of œdema in these 36 cases.—General anasarca, 7; legs and feet, 29; legs and face, 0; legs and sacral region, 0.

Time relation between onset of œdema and pellagrous rash.—Total pellagrins with œdema, 43; œdema before rash, 24; synchronous with rash, 15; œdema after rash, 4.

The blood in pellagra.—Careful blood counts were made upon 25 cases: R.B.C. 1,500,000 and below, 2; R.B.C. up to 2,500,000, 2; R.B.C. up to 3,500,000, 9; R.B.C. above 3,500,000, 12. The absolute leucocyte count in the majority approximated to normal, but a relative lymphocytosis was present in some. Of the 25 cases, 17 had a lymphocytosis of over 30 per cent. and 10 over 40 per cent. The highest count was 60 per cent. Eosinophile cells were on the average 1·5 per cent., the highest count being 6 per cent. The colour index in 14 of the cases was normal, in 5 below 1, and in 6 higher than 1. For considerable help in the above counts I am indebted to Dr. Manson-Bahr.

The urine in pellagra.—No albumin, blood, sugar, or casts were found in 44 out of 46 cases examined. Indican was looked for in 37 cases. Two methods were used: (1) Calcium hypochlorite, (2) hydrochloric acid and chlorate of potash. In 24 the reaction was present but slight, in 5 it was marked, and in 4 it was absent. Variations were shown upon successive examinations. In view of the marked wasting I tried tests for acetone (both iodoform and nitro-prusside reactions) and diacetic acid (ferric chloride). Neither of these substances was ever found.

Blood pressure.—The resemblance of pellagra to Addison's disease suggested these examinations. In some of the cases very low readings were found, especially just before death. The lowest readings of systolic pressure in 3 moribund cases were 78, 80, and 86 respectively. Both the palpation and auscultatory methods were used.

Progress of the cases.—Of the 64 cases 26 died, 24 were discharged perfectly well, and 14 were still in hospital when I left at the end of June, 1914. It is interesting here to note that surgical cases with wounds show great difficulty in healing and fractured bones complicated with pellagra would not unite. So marked were these facts that after further experience severe limb injuries with pellagra were treated by immediate amputation.

Post-mortem Findings.

Of the 26 cases that died post-mortem examinations were performed in 24. For 14 of these I am indebted to Dr. Manson-Bahr. The results can be briefly summarised as follows.

Intestines.—Nineteen showed severe ulceration of a bacillary dysenteric type. Three presented a curious condition of small, scattered submucous hæmorrhages throughout the large intestine. In two cases the intestines were normal. In none was the ankylostoma found and in none was there any thinning of the intestinal wall so often described.

Liver.—Average weight 41 oz. Seven showed fatty changes. In one there was a large hydatid cyst.

Spleen.—Average weight 9 oz. Eleven showed perisplenitis (in one this was cartilaginous).

Kidneys.—Normal except in three cases, which showed miliary abscesses (*B. coli*).

Suprarenals.—Normal in all but one case, where there was hæmorrhage into both organs; in this case each gland weighed ½ oz.

Thyroid and *pancreas* normal.

Heart.—Singularly small. Usual weight about 5–6 oz.

Lungs.—Hilum phthisis, 3 cases; advanced phthisis with cavity formation, 1 case; tuberculous bronchial glands, 2 cases; pneumonia, 2 cases.

Brain and spinal cord.—These organs were examined in 12 cases. Of these, 9 showed a peculiar brown pigmentation around the medulla, most marked on the anterior surface. Dr. Warnock, director of the asylum at Abbassia, stated that this curious condition is very common in pellagra. Another feature that I have not seen described elsewhere was a gelatinous condition of the choroid plexuses resembling frog spawn. This was noticed in three of the cases. In one case the brain was œdematous and in four the amount of cerebro-spinal fluid was increased.

Dr. Manson-Bahr examined microscopic sections of all the organs except the brain and spinal cord. Unfortunately, we had no facilities for neurological research at that time. The intestines showed the usual changes associated with bacillary dysentery, while the other organs appeared for the most part normal. Dr. Manson-Bahr reports that he found almost constantly in the suprarenals a fatty degeneration of the cortex.

Treatment.

The therapeutics of pellagra is unfortunately very limited. In these cases I tried three lines of treatment.

(1) Arsenic, given in the form of Fowler's solution. The initial dose was 3 m. three times daily, increasing by 1 m. every other day up to 12 m. t.d.s. At this dosage all the 16 cases showed marked increase in diarrhœa. Two cases received 14 m. t.d.s., but they, too, then fell out owing to diarrhœa. An arsenic-free interval was ordered and then the treatment was begun again. This time, even when the dosage reached m. 4 t.d.s., diarrhœa became worse and the treatment was stopped. My experience was that arsenic is contraindicated in the acute stages of the disease.

(2) On the assumption that there was suprarenal inadequacy in pellagra adrenalin was tried in the absence of preparations of the whole gland. Hypodermic injections of 5 m. of a 1/1000 solution were given t.d.s. My opinion is that benefit was derived from this drug in many of the cases.

(3) Finally, on the assumption that pellagra is a food-deficiency disease a liberal increase in diet was tried without drugs. The ordinary hospital diet was altered to the following:—Breakfast: bread and milk (English

bread, milk 1 pint) with sugar, and one egg. At 10.30 A.M. one egg in ¼ pint of milk. Dinner: Vegetable soup, lean meat or chicken (½–¾ lb.), rice and vegetables sometimes, potatoes, and English bread. Supper: Bread and milk (English bread, milk ½ pint) and sugar and one egg. At 8 P.M.: One egg in ¼ pint of milk. Cheese with meals occasionally. I gave orders that these quantities might be exceeded, but that never less than 2 pints of milk, four eggs, and half to three-quarters of a pound of meat a day should be given. When severe diarrhœa was present the rice and vegetables were excluded, but not the soup; otherwise the diet remained the same. On May 1st, 1917, 10 bad cases of pellagra were placed on the above diet; 2 of these died, so 2 of the control cases were added. Observations of weight, the only sure criterion of progress in pellagra, were made at weekly intervals up to June 21st, 1917, when owing to illness I had to relinquish the work.

Leaving out of account the 2 cases which died, increase in weight was noted in 7 out of the 10 cases; 2 remained the same and 1 decreased by 19 lb. Of the 7 cases which gained weight the increase in seven weeks was as follows: 6 lb., 9 lb., 17 lb., 18 lb., 19 lb., 23 lb., 23 lb. Sixteen other cases were taken as controls; these were kept on the ordinary full diet of the hospital —viz., per diem: native bread, 937 g.; beef, 115 g.; vegetables, 120 g.; rice, 115 g.; milk, 200 g.; fat, 20 g.; sugar, 200 g.; salt, 15 g.; black pepper, 3 g.; onions, 20 g.; tomatoes, 10 g. Of these 16 cases, 7 were pellagrins, 9 were not. The 7 pellagrins showed slight changes only in weight except one, who gained 13 lb. in five weeks. The 9 non-pellagrins gained weight slightly on the average, the highest gain being 8 lb. It is clear, therefore, that the increase in diet was decidedly beneficial as a therapeutic measure.

Experimental Work.

Blood cultures.—Seven cases of pellagra with the rash at its height were studied by Dr. Manson-Bahr and myself. The blood was collected in the usual way and cultivated according to the following five methods. (1) N.N.N. medium for protozoa (Manson)[13]; (2) glucose broth; (3) bile; (4) blood serum; (5) anaerobic. The results were disappointing. Most of the cultures remained sterile throughout, while others were obviously contaminated by the dust so difficult to avoid in the Egyptian climate in summer. No trace of Tizzoni's strepto-bacillus[14 15] was discovered, nor did we notice any abnormal fluorescene of the blood serum.[16]

Examination of fæces for strepto-bacillus of Tizzoni.—This author[14 15] states that if pellagrous stools are heated at 80° C. for one hour most of the organisms are destroyed and a strepto-bacillus can be isolated. Like most other observers (Perroncito[17] &c.), I could find no such micro-organism.

Complement-fixation phenomena in pellagra.—For this section I am again indebted to Dr. Manson-Bahr. Attempts have been made by Cesa-Biancha,[18] Ormsby,[19] and others to discover a reaction similar to the Wassermann test in syphilis. So far the results have been negative. Firstly, 11 pellagrous sera were examined by the Wassermann test for syphilis and all found completely negative. Next, various antigens were made from the organs of pellagrous post-mortems—viz., thyroid, suprarenal, liver, spleen, kidney. The antigens were prepared in different ways: (1) thyroid, 10 per cent. in 70 per cent. alcohol; (2) suprarenal, 5 per cent. in 70 per cent. alcohol; (3) spleen, 5 per cent. in 70 per cent. alcohol; (4) liver, 5 per cent. in 70 per cent. alcohol; (5) kidney, 5 per cent. in 70 per cent. alcohol. (Also varying strengths of these antigen solutions.) The antigens were prepared by macerating the organs and leaving them to dry in the sun in sterile Petri dishes. Then the alcohol was added and extraction allowed to go on for varying periods, usually about three days. Saline extracts were also made as follows: Immediately after death the organs were macerated in 5–6 times their volumes of normal saline plus 5 per cent. phenol. These were then left seven days in the incubator, being stirred repeatedly. Finally, the solutions were filtered into sterile test-tubes. Many experiments were made using these antigens upon the sera of pellagrins, but no complement-fixation was observed.

Inoculation of rabbits with pellagrous sera.—In 1914 Harris[20] stated that he had produced pellagra in a monkey by injecting a Berkefeld filtrate derived from human pellagrous organs. Lavinder, Francis, Grimm, and Lorenz[21] repeated the experiment on many monkeys with only one doubtfully positive result. Dearman[22] claimed that after injecting rabbits with pellagrous blood in nine days symptoms developed, and in 23 days erythema, desquamation, and pigmentation of the skin followed.

We attempted to repeat Dearman's experiments, though at that time his work was unknown to us. Eight rabbits were procured, but seven died before the work could be started. The remaining rabbit received four intravenous injections of 2 c.cm. of pellagrous serum at two-day intervals. No ill-effects were noted up to its death from foot rot.

Diagnostic uses of maize extracts.—Much work has been done on this subject, using extracts of good and bad maize. The results so far are contradictory (Ormsby,[19] Raubitschek,[23] Rondini,[24] Finita and Novello,[25] Cesa-Bianchi,[18] Volpino[26]). I procured large quantities of maize, but all my efforts to render it bad failed. Extracts from good maize were prepared, but unfortunately this part of the work remained uncompleted.

The Second Period of the Outbreak.

For a description of this period I have used the notes which Dr. J. I. Enright has so kindly placed at my disposal. During this time 118 cases of pellagra were examined while in hospital. The great majority of them were Turks, six were Albanians, two Arabs, and one Greek. I was interested to find in reading over these notes records of two only of my old cases from the previous outbreak; both of these died. It is not my intention to give a detailed description of these cases, and I will only mention some of the more important features. Out of 118 cases:—

Gastro-intestinal system.—Diarrhœa with blood, 53, diarrhœa without blood, 33; no diarrhœa, 32.

The rash.—Hands, 114 (the remaining four cases had marked atrophy of the skin of the hands); face, 25; neck, 23; feet, 81; pressure areas, 30.

Tongue showed the usual changes in the majority of the cases.

Nervous system.—Apparently none of the cases showed signs of organic nerve disease.

Œdema.—The total number of cases showing this symptom was 38. The distribution was as follows. extremities, 32; anasarca, 11; serous cavities, 22.

Urine.—57 cases were examined. Albumin is noted as being present in considerable amount in 26 and in a trace only in 7.

Blood.—42 cases were examined both as regards absolute and differential counts. The results were practically the same as those found by other observers, except that the lymphocytosis was not so frequent or so high.

Besides the usual diseases common to a subtropical climate phthisis was noted as being present clinically in 17. The severity of this outbreak can readily be imagined when we see that 92 out of the 118 cases died.

Post-mortems.

Dr. Enright gave me notes of 32 *post-mortem* examinations from which I have extracted the following points:—

Lungs.—Phthisis, 10; pneumonia, 3; pleural effusion, 3; tuberculous bronchial glands, 2; bronchiectasis, 1 (with amyloid liver and spleen).

Heart.—Average weight 7 oz. Normal, except pericarditis, 2; mitral stenosis, 2.

Spleen.—Average weight 8 oz. (the largest 16 oz., the smallest 2 oz.; 8 showed perisplenitis).

Liver.—Average weight 40 oz.; fatty changes were noted in 13 and perihepatitis in 2.

Kidneys.—Normal, except for 3 which showed subacute nephritis and 1 which had tubercular lesions.

Intestines.—Dysenteric ulceration was present in 21 cases.

This concludes the second period. The next period is dealt with by the Pellagra Commission which investigated the disease among the prisoners of war from October, 1918, to December, 1918.

Remarks on the Causation of Pellagra.

For some years I have thought that the only way to discover the cause of a disease like pellagra was to make, as it were, an armchair study of all the cases the world over. The question will then resolve itself into a review of the similarities and dissimilarities presented by the various outbreaks, with the hope that in the end the search may reveal a factor common to all.

Consider the following instances: a woman in the Orkney Isles, an Egyptian peasant, a small boy in London, a native in Nyasaland, a lunatic in one of our London asylums, a governess in a well-to-do family in the Southern States of America. All these cases suffer from pellagra. What is the common factor here? It cannot be colloidal silica in the water they drink (Alessandrini[27]). Is it the bite of a fly? (Sambon[28] and others). What fly, except the common house-fly, is found in all these places? If the house-fly be the cause, why is the disease so rare where the fly is so common? And so on through all the various ætiological theories we go, finding that none will fit all the cases except two: (1) that the disease is due to the absence of something, possibly in the diet; (2) that it is due to the presence of something, possibly a toxin.

A consideration of the present outbreak, together with the fact that the German prisoners of war in Egypt showed the disease, must also bring us to the same two conclusions. Here you have two armies fighting over the same ground, exposed to the same climate and privations, and coming of a very similar race, the British and the Germans. The Germans develop pellagra, while the British do not. Three possible differences exist: (1) That the Germans were fighting alongside the Turks, some of whom were pellagrous at the time. It must not be forgotten, however, that with our army was the Egyptian Labour Corps, and pellagra is endemic is Egypt. This difference, then, is excluded. (2) That the Germans were suffering from the absence of something, probably in the diet, which our army possessed. (3) The Germans came under the influence of a toxin not affecting our army.

The Three Grades of Pellagra.

Before discussing these two possibilities, I wish to make clear two views which I hold regarding pellagra itself.

(1) It must not be thought that the disease is necessarily a clinical entity in the sense that it has one definite cause only in its production. It may be rather of the nature of a syndrome, for which more than one factor may be responsible. The lesson of beri-beri, however, teaches clearly that seemingly opposed views may in reality be one and the same. This disease at first was said to be due to eating polished rice. So it was. Others said it could not be due to eating rice, because those who did not eat rice were attacked by a similar disease. They also were right. The vitamine theory ultimately showed that both views were correct. Thus it may be with pellagra.

(2) The second point that I wish to emphasise is the extreme variability in the severity of the disease. This is acknowledged on all sides by saying the disease is mild, severe, &c. But I would point out there may be something more than this. I first realised that this was so after many discussions with Dr. W. H. Wilson, of the Physiological Department of the Kasr-el-Aini Medical School, Cairo. I wish to take this opportunity of thanking him for the insight he gave me into the ætiology of pellagra and to state that many of the views here put forward are due to his influence, as will be obvious from the Egyptian Pellagra Commission Report. After much thought upon Dr. Wilson's arguments I have come to the conclusion that pellagra is a syndome of three grades, with perhaps a different ætiology. Grade I. is exemplified by a small Egyptian gardener boy in the employ of Dr. Wilson. This boy developed pellagra and he was cured almost immediately by the simple device of adding one egg per diem to his diet. Contrast this with the sweetshop assistant who is allowed to eat sweets ad nauseam till she is cured of the craving. She develops glycosuria, which is immediately cured by stopping the excessive sugar intake. Grade II. is present when the pellagrin can be saved only by relentless over-feeding. The lost balance is regained and maintained in the same way as by carefully dieting an elderly diabetic we may prolong his life for many years. Grade III. is the stage when the balance is lost completely and nothing can re-establish it, as in the young diabetic. It is clear that these three grades of diabetes probably have a different ætiology. Is it possible that the same reasoning may be applied to the syndrome called pellagra?

With these possibilities in mind, let us discuss the two views concerning the ætiology of the disease.

Pellagra as a Deficiency Disease.

Firstly, then, pellagra may be due to the absence of something in the diet. Strambio in 1786 began the maize theory of the disease, which has adherents to this day. It has certainly been shown that those who have never eaten maize contract pellagra, but numerous observers still fail to read the lesson of beri-beri. There is evidence to show that there is something lacking in the dietary of those eating maize, but it is not true to say that either good or bad maize is the cause of pellagra. What is the substance lacking in such a diet? The work of Goldberger[10] is of enormous importance in the answering of this question. He persuaded a squad of 11 convicts to subject themselves to a certain dietary for a given period with the reward of a free pardon. Goldberger then instituted a diet which in essence was lacking in fresh animal protein, with the result that within five months 6 of the 11 volunteers developed pellagra. Not content with this, Goldberger then performed the converse experiment. An orphanage was chosen in which every year pellagra made its appearance. The diet of the inmates was then largely increased, chiefly in respect of fresh animal protein, and in the following season the disease was practically absent. I can find no record of the after-history of the six pellagrous convicts, but it seems that they belonged to Grade I. of the disease. The orphans, however, may have been Grade II. cases.

Further evidence regarding diet deficiencies and pellagra is furnished by the interesting observations of Külz,[12] a German medical officer, who himself contracted the disease during the war while on service in Roumania. This officer states that the German bread contained 20 per cent. of maize, and this bread, he claims, was the cause of his illness. The first symptoms were referred to the digestive tract, then followed œdema of the legs, and, finally, a pellagrous eruption. He was then invalided home and was perfectly well in three weeks. However, every time he ate army bread the œdema again appeared, and he seems confident that had he continued to eat it pellagra also would have reappeared. The exact order of symptoms here depicted was that noted among the Turks—namely, first diarrhœa, then œdema, then the rash.

Was there any food deficiency among the Turks? For the dietetic facts here quoted I am indebted to the report of the Egyptian Pellagra Commission. In this report Dr. Wilson introduces a comparatively new idea to which the name "Biological Value of Protein" is given. It is well known that though, outwardly, vegetable and meat protein are similar, actually meat protein is very much more readily assimilated than the vegetable variety. It is this assimilability of protein which constitutes its biological value. Dr. Wilson reports that "Pellagra occurs or does not occur according as that value was less or more than 40 g. per diem." The pre-capture diets of the Turks on the Sinai front showed 30·4 as the biological value of the protein; in 1918, on the Palestine front, it fell to 21, and we may be sure that it was as low or even lower in the Hedjaz. The diets for labour prisoners showed a value of 48·7, amended later to 53·8, and for non-labour prisoners 39 1, later amended to 44·6 The cases that I have described were non labour prisoners and received the non-amended diet. The interned women prisoners' diet showed a biological value of 41·9, and it will be remembered that they did not contract pellagra.

It is clear, therefore, that the Turks before capture were suffering from food deficiency and that for some time after capture they were subject to a diet not very much better. This may account for the fact that some were pellagrous when captured and others developed the disease after capture Even if it be asserted that all the prisoners were really chronic pellagrins, it appears that the diets supplied in our camps were not sufficient to inhibit recurrences

Sufficient has been said to show that there is a definite connexion between food deficiency and pellagra Sufficient also is the evidence that the Turks were subject to a food deficiency and that correcting this error caused great improvement in their condition. It only remains to draw the conclusion that the diet omissions were the cause of the disease

This evidence is enough to account for the majority of pellagra outbreaks. But here and there cases arise which have been in no way subject to any food deficiency. Such an outbreak of pellagra has been recorded by Dr. Enright among German prisoners of war in Cairo after capture. These cases both before and after capture were very well fed, the biological protein value of the post capture diet being at the beginning 49 4 and later being raised to 58·3 How can such cases be accounted for?

The Toxin Hypothesis.

This brings me to the second supposition regarding the ætiology of pellagra—viz., the presence of some toxic substance. I would suggest that such a toxin is present in these cases, and that it acts upon the intestines or the contents thereof in such a way that protein is not assimilated as it ought to be A man receives, for example, protein of biological value 58, but owing to toxin influences, the figure 30 may represent the amount actually assimilated. Accordingly he becomes pellagrous, not because there is an error in his diet, but because there is an error in himself. The end result is the same—protein starvation In my opinion, therefore, cases of pellagra occurring amongst those who have always had good food and plenty of it, do *not* negative the theory that pellagra is a food deficiency disease Perhaps, also, there is some such ætiological difference in the three grades of the disease

It only remains to discuss what is the nature of this hypothetical toxic substance. It must enter the body from without It cannot be the result of a metabolic error, because the disease occurs in epidemics It is difficult to imagine, for example, an epidemic of diabetes. It cannot be carried by the bite of an insect for reasons already stated It has nothing to do with malaria or dysentery because pellagra was unknown in our troops who suffered from both diseases It may be contained in ingested material, but, if it is, it must be something common to the whole world since cases occur in such different localities Its probable habitat is the digestive tract, as evidenced by the gastro intestinal symptoms which usually appear first, and the indicanuria, and by the fact that protein is found in the stools in abnormal amounts It may be, however, that this toxic substance makes its effect by attacking the endocrine organs, especially the suprarenals. The similarities of pellagra to Addison's disease are too obvious to detail. The toxin is apparently of the nature of a virus, since the nervous changes show unmistakable evidence of degeneration rather than of inflammation. That this substance is not transmissible is shown by two facts. (1) That no attendant on pellagrins has ever contracted the disease, and (2) the heroic experiments of Goldberger,[29] in which fæces, urine, scales from the skin, and all manner of horrible matters arising from pellagrins were eaten by volunteers with no evil results, even after injections and inoculation on mucous surfaces.

Conclusion.

I claim that there is some evidence to show that pellagra is a syndrome which occurs most often in the under-fed, using the expression in its scientific sense, and sometimes in the well-fed. I have also tried to show how this syndrome may vary in character, according as the food deficiency is from without or from within. I state emphatically that just as perilobular cirrhosis of the liver may occur in those who have drunk spirits to excess and in those who have never had a drop of alcohol in their lives, due, as it is supposed, to some derangement of the intestine, so may pellagra occur in the under fed and in the well-fed for a similar reason.

To show that I am fully aware of my presumption in trying to say anything new about pellagra, I will mention in conclusion a quotation which may be found in one of the late Dr. Sandwith's papers: "The field of pellagrous ætiology has been the playground of fledglings, whose intellectual judgment is befuddled because they have no real comprehension of the fundamental question, and therefore attempt to introduce into the ætiology of pellagra all sorts of things from bald banalities to the most wonderful fantasies"

My thanks are due to the authorities for the facilities they gave for this work, and especially would I mention again Dr. Manson-Bahr, whose energy and scientific devotion have inspired me to renewed efforts.

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THE LATE DR. W. ALLEN.—William Allen, M D., M Ch & L M R U I, who died recently at his residence, Derwent House, Shotley Bridge, aged 63, was a student of Queen's College, Galway, and a graduate and gold medalist of the University of Ireland He qualified in 1877 and was for a time senior demonstrator of anatomy in the University of Glasgow. Some 36 years ago he went to Leadgate in Yorkshire, where he was medical superintendent of the infectious hospital and medical officer of health to the urban district council, as well as medical officer of health to the Benfield side urban district council Later he removed to Shotley Bridge where he built up an extensive practice, and where he will be much missed

INTRA-CARDIAC PRESSURE AS A STANDARD IN CARDIOTHERAPY.

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IN spite of the progress in cardiology within recent years the treatment of heart disease is as unsatisfactory now as it was 20 or 30 years ago. What are the indications for the administration of any specific drug in the various forms of heart disease? How long should the use of that drug be continued? Which are the factors determining the exact dose of a drug to be prescribed? It is impossible to answer adequately these questions in the absence of a comprehensive principle from cardiotherapy on which we could rely as a guide. In this paper an attempt is made to determine whether by an application of exact methods to cardiotherapy it might not be possible to discover some principle which might act as basis for a more rational treatment of heart disease. The leading idea is to develop a standard by which the degree of abnormality in the cardiac mechanism can be gauged, and I shall attempt to prove that the intra-cardiac pressure supplies such a standard, not only for diagnostic but also for therapeutic purposes; for in determining the effect of a given drug on the intra-cardiac pressure, we shall at the same time be enabled to draw conclusions as regards its therapeutic effects on the cardiac disturbance.

It is clear that if an abnormal mechanism is to be corrected, it is desirable that the exact nature of its divergence from the normal should be known; it is equally clear that if a drug is to be prescribed for the purpose of remedying a defective mechanism it is necessary to ascertain the exact effects which such a drug exercises on that mechanism.

Estimation of Intra-cardiac Pressure.

First of all we shall have to find out whether the intra-cardiac pressure can with some degree of certainty be determined. I propose the estimation of the intra-cardiac pressure by ascertaining the duration of the diastole in relation to the systole.

The electrocardiograph offers an easy and accurate method of measuring the length of systole and diastole. It is assumed that a relatively long diastole in relation to a short systole signifies a high intra-cardiac pressure, since in a long diastole a large quantity of blood is permitted to be collected in the ventricles, which has to be expelled in a relatively short systole and therefore under higher pressure. It is true that the length of the diastole does not always stand in a definite relation to the quantity of blood which flows into the ventricles. Under increased venous pressure a relatively large quantity of blood will reach the ventricles, even if the diastole is of short duration. On the other hand, under the influence of digitalis the pressure in the jugular veins is so low that blood flows into the auricle at a slower rate. However, it is only in extreme cases where this factor is so considerable as to influence materially the relation between the length of the diastole and the quantity of blood which the ventricle receives. Moreover, there are two well-known facts which demonstrate conclusively that a long diastole strains the heart muscle to a greater extent than a short one. It is a general law in physics that the pressure in a fluid acts in all directions; therefore the tension caused by any given fluid on the walls of a closed vessel will increase with the diameter of the vessel. The total tension on the muscular walls of the heart will be greater the longer the diastole lasts. This is one fact. The other fact is concerned with the anatomical construction of the heart. With increased distension the walls of the heart become thinner, and the number of muscle fibres in a given area fewer, so that the longer the diastole the more strongly will each fibre have to contract in order to produce a given tension in the enclosed blood.[1] I think, therefore, we may safely assume, everything being equal, that the strain which the heart muscle has to bear during its systole will be proportionate to the length of the diastole. It is possible to some extent to supplement the data derived from the duration of the diastole in regard to the intra-cardiac pressure by measuring the pulse pressure.

The Two Types of Heart Failure.

I shall proceed now to ascertain the changes which heart failure produces on the intra-cardiac pressure, and will deal later on with the effects of some drugs on the tension of the heart chambers. We shall be then in a position to judge as to whether the knowledge gained from both could be usefully applied.

Two factors are concerned in the production of heart failure: the condition of the heart muscle and the intra-cardiac pressure. A moderate intra-cardiac pressure acting on a damaged heart might suffice to produce heart failure. An abnormally high intra-cardiac pressure acting on a healthy muscle should, theoretically at any rate, also be able to induce heart failure. To remedy such an abnormal condition either of two courses is open to us: we may decrease the intra-cardiac pressure or we may strengthen the heart muscle.

All cases of heart failure do not present a common symptomatology. Heart failure must be divided into two distinct types, with a characteristic group of symptoms for each. One type is commonly met with in young people with a moderate degree of hypertrophy of the left ventricle, the arterial blood pressure, which is never unduly high with these patients, becoming lowered along with failing compensation; the heart is dilated and the pulse frequency high. Œdema is often present in this type of heart failure and easily amenable to treatment. Præcordial pain might be present, but of a type different from that of the pang of angina. Sudden death is an extremely rare occurrence in these types of deficient heart action. The most striking feature of this type of heart failure is the normal condition of the arteries and the peripheral circulatory apparatus in general.

The other type of heart failure is common in patients which show either pronounced hypertrophy of the left ventricle or sclerosis of the heart muscle with a high arterial blood pressure. Deficient compensation manifests itself often by an angina-like pain at the cardiac region. The arterial blood pressure does not fall even with the advent of general œdema. I have observed in some cases even an actual increase of blood pressure after the appearance of œdema. The latter is less common in these cases, but when present stubbornly resisting treatment. The pulse does not show any acceleration. Sudden death is of common occurrence in this type of heart failure. But the most striking feature in this form of failing heart is the sclerosis of the arteries and the general pathological condition of the peripheral circulatory apparatus.

Changes in Intra-cardiac Pressure in Heart Failure with Normal Arteries.

If we now examine the different phases of the heart beat in the first type of heart failure we find the most characteristic feature of the abnormal mechanism is a considerable shortening of the diastole. The length of diastole may be equal to or even less than the length of the systole. As the pulse becomes quicker the diastole becomes shorter and shorter, whilst the length of the systole remains nearly the same as in the normal condition.

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[1] Starling: Physiology.

However, as soon as a certain rate of acceleration is attained, the systole becomes suddenly shortened to a considerable degree, a kind of new rhythm sets in, with a somewhat altered relationship in the length of diastole to the systole, the duration of the diastole in relation to systole becoming somewhat longer, as was the case immediately before the sudden shortening of the systole. The intra-cardiac pressure in such cases must be very low, since, as we have already seen, the amount of blood contained in the ventricle at the beginning of the systole must bear some relation to the time available for the inflow of the blood from the veins into the heart. The low intra-cardiac pressure in this type of heart failure is significant. The symptomatology in this type of heart failure is in the nature of an adaptation, the rapid pulse acting as a safety-valve to obviate more serious consequences. As the heart muscle is unable to withstand a normal intra-cardiac pressure, the pressure falls so low that even a weak muscle is able to cope with the slight strain thrown on the heart during the systole. It is quite true the heart has to make up for the smallness of the output at each systole by an increased number of contractions during a given time. Sometimes, of course, the total output in rapid heart action does not compensate sufficiently for the smallness of the output of a single contraction, with the result that engorgement of veins and œdema make their appearance. These must be regarded as secondary effects of an otherwise beneficial process. We understand now why sudden death is uncommon in these cases. The more one surveys the symptomatology of a series of cases showing this type of heart failure, the more one observes the important part which this adaptation plays in heart disease. The one supreme aim of nature in these cases is apparently to prevent *at all costs the undue straining* of the diseased heart muscle, which would lead to fatal results.

There are a few additional facts. Cases with only a moderate degree of compensation react on work, as we all know, by a greater increase in the pulse-rate than the normal heart does in the same circumstances. The increased demand on the heart is met in the normal heart mainly by an increase in the force of the heart beat, whilst in the diseased heart the pulse-rate increases instead. The increase of force in the single beat would, of course, mean an increase in the cardiac pressure, which is to be avoided. On the other hand, cases which show the second type of heart failure do not react on work with the same rate of acceleration of the pulse.

The same adaptation is observable in cases where there is a permanently rapid heart action due to myocarditis. The arterial systolic pressure is quite normal in these cases, since the total output of the heart in a given time is normal. The diastole is extremely short in these cases, often even shorter than the systole; the pulse pressure is very low. Finally, we find the same adaptation in fevers, where the myocardium is not in a fit condition to resist the high intra-cardiac pressure. In these cases there is often a loudness of the first sound, which signifies, as it always does, an incompletely filled ventricle, and thus supplies additional evidence of the low state of pressure existing in the chambers of the heart.

In all these cases the heart is the primary organ to be affected; the condition of the arteries and the rest of the circulatory apparatus is either normal or only slightly affected. The protective adaptation develops in the interest of the central organ alone. The demands made on the heart by the various organs of the body are not complied with if these demands entail too great a strain on the heart muscle. Then œdema appears and the peripheral circulation is disturbed, the systolic pressure falls, and the work of the heart is actually less than normal. The heart is actually under less strain in this condition than normally. The adaptation in these cases is all in favour of the heart muscle. The feature which concerns us here mostly is the fact that the intra-cardiac pressure is very low in this type of heart failure. The object of treatment here cannot, therefore, be the reduction of the intra-cardiac pressure, but the strengthening of the heart muscle. Any drug which acts as a tonic of the heart, even if it raises the intra-cardiac pressure, would answer our purpose.

Changes in Intra-cardiac Pressure in Heart Failure Associated with Arterio-sclerosis.

Let us observe now the mechanism of the second type of heart failure. The pulse-rate is not increased. The length of the systole in relation to the diastole remains the same as before the onset of heart failure, the intra-cardiac pressure remaining very high. The two factors which are immediately responsible for the heart failure have not altered. This is the reason why sudden death is so common in this type of heart disease.

The clinical features of this type of heart are totally different from the foregoing one. The mechanism here, too, is an adaptation, but an adaptation of a different order. In cases which show the first type of heart failure the adaptation is entirely in the interest of the central organ. In the cases we are dealing with at the moment the adaptation is entirely in the interest of the peripheral circulation, which entails, however, effects reacting disadvantageously on the central organ. The chief characteristic of this type of heart disease is a disturbance in the peripheral circulation, sclerosis of the blood-vessels, and an increased arterial tension.

From the beginning the trouble which the circulatory apparatus had to contend with lay on the peripheral side of the circulation, and the adaptation accordingly developed in the interest of the latter. The high arterial pressure and the increase in force of the single beat are obviously beneficial arrangements to overcome an increased resistance in the peripheral circulation. They who depreciate the value of a high peripheral pressure should reflect for a moment on the causes which give rise to cardiac asthma. This is due to a fall of arterial pressure. The comparatively low pressure does not constitute a strong enough driving force to overcome the resistance in the sclerotic coronary arteries, which results in temporary weakness of the heart muscle. This is the reason why the attack takes place in the greatest number of cases at a time when the patient is at complete rest and the arterial pressure at its lowest.

But to return to our main theme. We have seen that the pulse is slow, the arterial pressure high, becoming often higher with the appearance of general œdema. But perhaps the most striking feature of a typical case of this kind is the entire absence of jugular engorgement even when the general œdema is very much marked.

In a case I have in mind general œdema was present for many weeks, and jugular engorgement was absent to the very last moment of life. Surely the absence of jugular engorgement could not be explained in a case so serious by the assumption that the right ventricle remained normal till the last. However, if we consider the duration of the diastole in relation to the systole we must really not expect any engorgement of the jugular vein, since a long diastole provides plenty of time and plenty of space for veins to empty themselves into the auricles. There can be no question of back pressure in their case, since the increase in the arterial pressure shows that the heart action remained at least as powerful as ever. Now the generally accepted theory of the origin of œdema is backward pressure from the auricles, which causes engorgement and increased pressure in the veins, a theory which is quite compatible with all the clinical symptoms of the first type of heart failure. But how could the backward theory be made to account for the œdema of a case where the jugular vein is not engorged at all?

Still another feature came under my observation in connexion with this type of heart. It was a case of high systolic pressure, arterial sclerosis, nephritis, and aortic regurgitation. There was general œdema, but the systolic pressure remained high. I applied pressure on one of the veins on the dorsum of the hand by means of the Hooker apparatus. As soon as the pressure on the vein reached a certain degree the distal end of the vein began to show marked pulsations; the latter have been powerful enough to lift the water in the manometer about a fourth of an inch. This will give us some indication of the height of tension existing in the part of the circulation which lies between the arteries and this vein. All these facts make it probable that the course and origin of œdema is different in this type of heart disease from the type mentioned before. The œdema in these cases could not have originated from back pressure, but is more likely to have been caused by forward pressure—that means, of course, if undue pressure in any part of the circulation is the cause of œdema at all.

We have seen before that the appearance of œdema in cases which show the first type of heart failure actually lessens the total output of the heart and the strain of the heart is correspondingly diminished. Here, however, the œdema does not lessen the output of the heart. The adaptation in the interest of the peripheral circulation continues, and since the peripheral resistance has increased, the arterial pressure correspondingly increases in height. Increase in arterial pressure not followed by increase of the pulse-rate means increase in force of the single beat. Increase in force of a single beat means a greater intra-cardiac pressure.

What we are concerned with here mostly is the fact that the increase in tension in the rigid and sclerotic chamber of heart continues, even when symptoms of heart failure manifest themselves. The indication for treatment is obviously here to administer such drugs as should lower the intra-cardiac pressure and at the same time interfere as little as possible with the peripheral pressure.

The Effect on Intra-cardiac Pressure of Certain Drugs.

I shall say a few words in regard to those drugs which are in frequent use in the treatment of heart disease, and indicate the effect they exercise on the intra-cardiac pressure.

Digitalis in larger doses delays conductivity, produces double rhythm, an inverted T, and an electro-cardiac depression at the height of the systole. The appearance of one of these signs might be an indication to discontinue the drug in almost all forms of heart disease. Digitalis administered in small doses increases slightly the systole, whilst considerably prolonging the diastole, at the same time the intra-cardiac pressure is not much altered. Digitalis administered in medium doses will actually decrease somewhat the length of the systole and prolong slightly the diastole, the pulse frequency remaining unaltered. Digitalis in large doses decreases both the systole and diastole, the latter to a lesser extent. Medium doses of digitalis increase the intra-cardiac pressure, whilst large doses lower it considerably.[2]

Strychnine.—After enjoying great popularity this drug has been in disrepute within recent years. I am not in possession of any records taken from the patient immediately after the administration of strychnine. The greatest part of my material on which the subsequent conclusions rest is derived from the out-patient departments of the Northern Hospital. A few records are from my private electro-cardiograph practice.

The following table is a characteristic record of the effect of strychnine on the pulse frequency.

	Lengths of Pulse in Seconds.
Before the administration of strychnine...	·74, ·68, ·72, ·76, ·68, ·68, ·68, ·68, ·68, ·68, ·68, ·68.
A week after the continuous administration of ♏ v. strychnine thrice daily	·72, ·72, ·76, ·72, ·74, ·74, ·72, ·76, ·68.
A fortnight after the continuous administration of strychnine...	·80, ·82, ·84, ·83, ·83.
A fortnight after the discontinuance of strychnine	·76, ·76, ·76, ·76, ·76, ·76.

Strychnine also seems to have a favourable influence on the irregular heart action. Before the administration of strychnine 40 beats showed 19 premature beats; a week after the administration of strychnine about the same number of beats showed 8 extrasystoles; the continuation of strychnine to another week had the effect of reducing the number of extrasystoles to 3. As the same phenomenon has been often observed it cannot be an accidental occurrence. Strychnine certainly does not lower the pulse frequency in every instance. But my record demonstrates that strychnine is capable of influencing the pulse frequency. It is important to note that strychnine never disturbs the relation of the different phases of the heart beat to each other, as is the case with digitalis.

Caffeine.—The chief characteristic of caffeine cardio-electrographically is the effect it has on the shape of T, which becomes markedly pronounced under its influence. I do not know the meaning of this phenomenon. (An inverted T in some leads is certainly a pathological sign, so also is the entire absence of T.) A well-developed T is found in young people. In the majority of my cases caffeine affected the relative size of the diastole to the systole, the latter increasing to a slight extent in length. Caffeine accelerates the pulse frequency. Caffeine certainly does not decrease the arterial pressure. The same drug can frequently be seen to neutralise some of the electro-cardiac peculiarities produced by digitalis. It will accelerate conductivity, remove digitalis depression, and prevent the inversion of T.

Camphor shows similar effects in regard to T as caffeine.

In regard to *atropine* I have not much to say. In accelerating the pulse frequency it also effects a shortening of the diastole and a considerable fall in the intracardiac pressure.

Conclusions.

Let us now see what use we can make of the principles enunciated in this paper. It is clear digitalis is indicated in cases which show the first type of heart failure. The tonic virtues of digitalis will act on the heart muscle before the intra-cardiac pressure-raising properties of digitalis can have an effect on the heart. The exact doses of digitalis can be regulated by taking as guide the state of the intra-cardiac pressure, particulars of which I have given elsewhere. If we come to cases showing the second type of heart failure it is obvious digitalis in such cases is not indicated. Any drug which might increase the intra-cardiac pressure would only aggravate matters. The most pressing symptom calling for immediate interference is the high intra-cardiac pressure. The best thing is to imitate nature's cure of the first type of heart failure. The ideal treatment in such cases would be one which would lower the intra-cardiac pressure and at the same time leave the arterial pressure unaltered. The prolonged use of nitrites is contra-indicated in such cases because they lower the arterial pressure so much. Caffeine seems to have all the properties we require for treatment of such cases, since it lowers the intra-cardiac pressure and does not decrease arterial tension. Clinical evidence, too, seems to confirm the usefulness of this drug in such cases. Unfortunately, many patients cannot take caffeine for any length of time on account of the nervous excitability which this drug induces. We have to fall back on atropin. This drug, by increasing the pulse frequency, diminishes considerably the intra-cardiac pressure. It is a good plan to treat the patient alternately with caffeine and atropine. As soon as the pulse-rate is considerably increased the intra-cardiac pressure falls proportionately. Small doses of digitalis are useful now, the drug to be continued till there is evidence of a consider-

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[2] Harris: Quarterly Journal of Medicine, vol. xiii., No. 49, October, 1919.

able rise in intra-cardiac pressure. Digitalis benefits the heart muscle, even in rapid heart action. Atropin lowers the arterial blood pressure somewhat, but not to such extent as the nitrites.

The treatment of œdema by digitalis is contra-indicated in these cases, particularly as the dose required for this purpose would be a large one. Digitalis, of course, might lessen the œdema in such cases. But the cardiac pain, the great discomfort of the patient, and the danger of sudden death would increase under digitalis.

Puncturing of the lower extremities are useful and quite safe if the rules of asepsis are observed. I found adrenalin a most useful drug for removal of œdema in such cases. Adrenalin probably acts as a diuretic, and does not affect the intra-cardiac pressure. Where digitalis is indicated graphic methods will be able to guide us in respect to the exact doses of the drug it is safe to administer. Caffeine acts in many respects as an antidote to digitalis, and one is able to neutralise the objectionable features of the latter as manifested by electrocardiographic signs, by countering digitalis with caffeine.

Such is a crude outline of the value of exact methods in cardiotherapy, which I hope is capable of development.

TWO CASES OF
INTRAMEDULLARY TUMOUR OF THE SPINAL CORD,
WITH OPERATION.

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TUMOURS of the spinal cord or its membranes are sufficiently rare to arouse interest at any time, and more especially when they are of the intramedullary type—that is, arising in the substance of the spinal cord itself. At the present moment, when the wounds of war have added to our experience of neurological surgery, it seems the more appropriate to record these two cases of intramedullary tumour. The cases themselves, both in their clinical course and from the nature of the tumours, present many points of great interest to the neurologist. Frazier's recent text-book[1] affords the most complete bibliography on the subject of spinal tumours yet available. Out of the 330 cases of spinal tumour in which an operation was performed only 36 examples of intramedullary tumour were found (10·9 per cent.). In Schlesinger's report of 35,000 autopsies at Vienna 135 cases of spinal tumour were found, of which 20 (14·8 per cent.) were of the intramedullary type. Since the number of spinal tumours formed only 2·06 per cent. of the total number of tumours of all kinds it will readily be seen that the condition is a rare one. Intramedullary tumours more commonly take the form of an infiltrating growth of the cord, though the encapsuled forms have been described. Out of the 36 cases collected by Frazier where operation had been performed 9 were examples of glioma, and this is stated to be the most common form of growth. The first case here described is a case of psammoma of the cord, and is, I believe, the first of such to be recorded.

CASE 1.—J. W. P., male, aged 18, was admitted to the Hospital for Epilepsy and Paralysis, Maida Vale, on Feb. 2nd, 1919, under the care of the late Dr. Fearnsides, after whose death he passed into my charge. The history of the case was as follows. About eight years before he had begun to lose the use of his legs; the onset of this weakness was very gradual and had not been accompanied by any pain at all. From July, 1912, to July, 1913, he had been a patient in the wards of the National Hospital for the Paralysed and Epileptic, Queen-square. I was allowed to see the notes of the case, and found that diagnosis of spinal caries with compression of the cord had been made. From that time until he came under observation at the Hospital for Epilepsy and Paralysis, Maida Vale, the progress was steadily downhill, until he gradually became unable to walk at all. Severe flexor and adductor spasms of the legs became a troublesome symptom, but no pain beyond a somewhat vague and ill-localised discomfort in the mid-dorsal region had been felt. He had occasionally experienced a difficulty in passing water, but there had never been involuntary escape of urine. He stated, however, that he did not feel his urine passing. There had never been any loss of control over the rectum. There was nothing in the previous history worthy of mention. In July, 1919, when I first saw him, the condition was as follows. He was quite unable to walk without assistance. He complained of a dull aching pain referred to the midscapular region, and also of cramps in his legs. These latter were really severe flexor and adductor spasms of the legs and thighs, which not only caused great discomfort but actually prevented sleep, and, further, were a not unimportant contributory cause of his inability to walk. No physical signs of disease could be found in the eyes, cranial nerves or upper extremities. Examination of the thoracic and abdominal viscera was negative. Both upper and lower segments of the recti abdominis were paralysed, and the abdominal reflexes were absent. The legs were in a condition of extreme spastic paraplegia, and when he was lying quietly in bed were usually extended. Any attempts at voluntary movement, however, or any handling of the legs produced violent flexor and adductor spasms. Both knee-jerks and both ankle-jerks were much exaggerated, and ankle clonus was obtained in both legs. The plantar reflexes were extensor, and the extension of the toes was accompanied by a general flexion movement of the whole limb. There was a gross loss of sensation present, but this was not constant and was variable in extent. No absolute loss of light touch sensation could be demonstrated, nor any complete loss to pinprick, but there was a blunting to pinprick as high as the costal margin in the anterior axillary line on each side.

Appreciation of heat and cold was defective as high as the nipple line; but here the limits were even more inconstant and vague. On the right side there was a narrow band of hyperæsthesia at the level of the seventh dorsal segment of the cord. The sense of muscle pain was preserved in the legs and the vibration sense only slightly diminished. The spasticity and spasm prevented any useful testing of the sensations of the position and passive movements of the joints. Examination of the spinal column displayed two curvatures—a scoliosis in the dorsi-lumbar region and a kyphosis in the dorsal region. No definite local, tenderness or rigidity could be found. From an X ray examination Dr. Gilbert Scott reported a slight curvature of the fourth, fifth, and sixth dorsal vertebræ and some loss of definition of these bodies. At this time there was no interference with the control of the bladder or rectum, except that the patient could not feel his urine passing. The Wassermann reaction in the blood was negative. The cerebro-spinal fluid was clear, reduced Fehling's solution normally, gave a negative test for globulin, contained no cells and no organisms, but gave a feeble but definitely positive Wassermann reaction. Diagnosis was naturally in doubt. I did not consider that the case was one of spinal caries, but thought rather that the cord was compressed either by some slowly-growing tumour or possibly by some localised inflammatory condition, with

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[1] Frazier: The Surgery of the Spine and Spinal Cord (with complete bibliography).

perhaps an encysted collection of cerebro-spinal fluid. The absence of pain was a point against the diagnosis of extramedullary tumour, and the possibility of an intramedullary tumour was suggested but not maintained. No very material alteration in the patient's condition took place during the next six weeks, except a slight increase in the extent of the sensory loss. Thus, on August 18th the loss of sensation to pinprick extended to just below the nipples on the right side (dorsal 5) and on the left side to about two segments lower down. He now experienced occasional difficulty in passing urine.

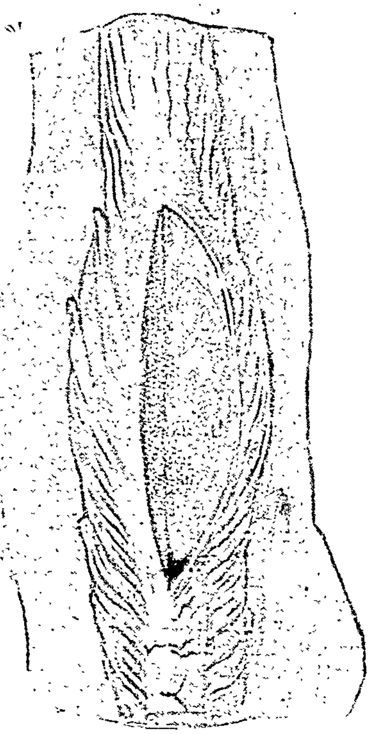

FIG. 1.—Intramedullary tumour (psammoma) of the spinal cord found post mortem in Case 1.

Operation was suggested and agreed to by the patient and his parents. In advising this I was fully conscious that an exploratory laminectomy was really what was being proposed, and I recommended it as the only course which might lead to cure or improvement. I therefore asked my colleague, Mr. Blundell Bankart, to operate and explore the cord at the level of the fifth dorsal segment. On August 23rd he performed the operation of laminectomy, removing the spines and laminæ on the first, second, third, and fourth dorsal vertebræ. To our great disappointment no tumour or other abnormality was found, and a probe appeared to pass readily up and down the theca in all directions. The cord itself was not incised. The wound was therefore closed. Next day there were complete paraplegia and retention of urine. On the 28th signs of an acute cystitis appeared. By Sept. 1st there were fever and pyuria. The legs became quite flaccid, and all the reflexes were lost with the exception of a feeble extensor response in the great toes. He died on Sep. 12th. A post-mortem examination was made soon after death. Death was due to infection of the urinary tract with consequent toxæmia. Both kidneys showed a well-marked condition of pyelonephritis with the formation of small abscesses; the ureters contained pus and the mucous membrane of the bladder was swollen, hæmorrhagic, and in several places sloughing. The operation wound was clean and well healed. The spinal cord was removed intact and hardened for several days before being examined. There was no sign of spinal meningitis. Further examination then revealed the presence of a fusiform enlargement of the cord, occupying as far as could be determined the first three dorsal segments; it was quite firm and harder than the ordinary substance of the cord itself. The incision in the dura mater made at operation was just ½ inch below the lower extremity of the tumour. A good idea of the extent and appearance of the tumour may be gained by reference to the accompanying sketch. (Fig. 1.) The tumour itself lies entirely within the cord, and is not in any way attached to the meninges. It is oval in shape, about 1½ inches in length, strictly-circumscribed, and of a peculiar greenish colour rather like that of chloroma. Dr. T. H. G. Shore examined it microscopically, and reported as follows: "The tumour consists of spindle cells of short type, together with some rounded cells; in places the spindle cells can be seen arranged in whorls, but most of these groups have undergone degeneration to form the spherical gritty particles so apparent to the knife on macroscopic section. These gritty particles form the striking feature of the section. The whole structure is typical of a psammoma."

CASE 2.—H. H., male, aged 14, was admitted to the Hospital for Epilepsy and Paralysis, Maida Vale, on Sept. 26th, 1919, complaining of weakness of the legs. The history was as follows: Until 6 years old he seemed perfectly well, after which he appeared delicate and did not gain weight. For about the last four years he had been observed by his parents to be clumsy on his feet, but this disability had not prevented him from playing games, &c. About a year or 18 months previous to admission to hospital a slight curvature of the spine was noticed. About six weeks before admission a marked weakness of the legs appeared, which rapidly grew worse, so that he became unable to walk at all. He had had no pain. There had been no retention of urine and the control over the rectum was not affected. Beyond an attack of whooping-cough as a child he had had no previous illnesses of any importance and there was no family history of any nervous disease or of tuberculosis.

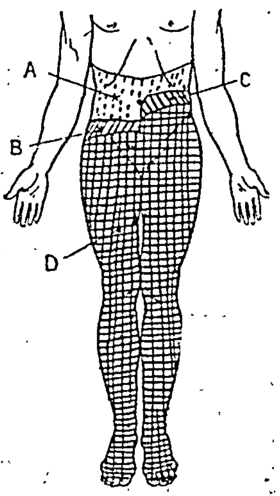

FIG. 2.—Chart showing loss of sensation in Case 2. A, Area of hyperæsthesia. B, Loss of touch sensation only. C, Loss of pinprick sensation. D, Loss of all forms of sensation.

On examination on Sept. 30th the condition was as follows: Examination of the eyes, cranial nerves, and upper limbs showed no abnormality. There were no physical signs of disease in the heart or lungs except a few scattered râles in the lower lobe of the left lung. The spine showed a slight kyphosis in the mid-dorsal region and a slight scoliosis, with convexity to the right. There was no tenderness on percussion of the spines and no rigidity of the spinal column. No signs of disease were found in the abdomen. Both upper and lower segments of the recti abdominis were acting, but the abdominal reflexes were not obtained. The legs showed a condition of flaccid paraplegia, and were extended flat in the bed. There was no obvious atrophy. A certain amount of voluntary power was still present. In the left leg tolerably good flexion at the hip-joint was still possible, extension was less well performed, and adduction and abduction were very feeble. Flexion and extension at the left knee-joint were possible but weak; there was no voluntary movement at the ankle-joint or at the toe-joints. In the right leg feeble movements of flexion and extension of the hip-joint alone were present. Both knee-jerks and both ankle-jerks were lost. On stimulation of the sole of the foot no definite movements of the big toes were obtained, but a general flexion reflex of the whole limb could be produced on each side by any nocuous stimulus; the receptive field of this reflex extended from the hips downwards and really embraced the whole limb. No reflex was obtained in the contralateral limb. There was a great loss of sensation present. This is best appreciated by a reference to the accompanying chart. (Fig. 2.) Briefly all forms of sensation were lost below the hips, while sensation of light touch and temperature were lost as high as the umbilicus; on the right side there was a narrow band of hyperæsthesia at the level of the umbilicus; on the left side the sensory loss extended about one segment higher than on the right. Micturition was normal; the urine showed no abnormality;

X ray examination of the spine revealed no abnormality. The Wassermann reaction in the blood was negative. Lumbar puncture revealed a very interesting alteration in the cerebro-spinal fluid. Only a very small amount, about 1 c.cm., could be obtained; this was clear and of a beautiful golden-brown colour, with a peculiar iridescence. After centrifugalisation only five lymphocytes and one polymorphonuclear cell were seen. No cholesterin crystals were seen. The Wassermann reaction was negative. The small quantity precluded further chemical tests, but the fluid did not show the heavy spontaneous coagulum described as part of Froin's syndrome.

The progress was steadily for the worse. By Oct. 13th complete retention was present and catheterisation was necessary; no automatic action of the bladder was present, and dribbling took place. By the 27th the urine contained a trace of pus. On the 28th the following note was made. Eyes, cranial nerves, and upper extremities all normal. Complete paralysis of the right lower limb; in the left lower limb the following movements are possible: at the hip-joint slight flexion, slight adduction and abduction and slight rotation; at the knee-joint slight flexion only; at the ankle-joint slight flexion and extension. Very feeble power of movement of the left toes. The upper segments of the recti abdominis were acting. Mild flexor spasms of both lower limbs present. Some general wasting of the whole body, but more especially of the legs.

Reflexes.—Arm-jerks present and equal. Abdominals. The right epigastric reflex only obtained, and that sluggishly. Bulbocavernosus and anal reflexes present. Both knee-jerks and both ankle-jerks lost. Typical flexion reflex obtained by stimulation of the sole of the foot. No response obtained in the contralateral limb.

Sensation.—No pain in the lower limbs; a dull pain in the back at the level of the third lumbar spine. No vasomotor or trophic changes of any importance to record. Retention of urine present, with overflow only when the bladder is allowed to become distended. No appreciable change in the level of the sensory loss, except that there is now a wider area of hyperæsthesia above the level of the loss of sensation, extending to just above the costal margin on each side.

The diagnosis naturally presented considerable difficulty, but after consultation with my colleagues I finally decided that the most probable cause was a tumour of the cord, very likely of the intramedullary type, and operation was decided upon. The level of the tumour was judged to be the ninth dorsal segment of the cord, but with the lesson of Case 1 before us and bearing in mind the general tendency to place the tumour too low a wide exposure, going well above the level of sensory loss, was decided on. Accordingly, on Oct. 30th Mr. Blundell Bankart performed the operation of laminectomy and removed the spines and arches of the fourth, fifth, sixth, seventh, and eighth dorsal vertebræ. The bone and meninges were normal. The cord was slightly rotated and exhibited a fusiform swelling about 1½ inches in length, at the level of the sixth, seventh, and eighth dorsal spines. In colour the swelling was dark red and proved to be an intramedullary tumour, covered by a thin shell of normal cord substance. An incision about an inch in length was made in the long axis of the tumour and down the postero-median septum of the cord. Some old and recent blood escaped and a small amount of rather sticky gelatinous material, some of which was carefully preserved for microscopic section. The incision into the tumour was left open, as well as the lower part of the incision into the dura mater, with the idea that it might act as a decompression of the cord, and in the hopes that the tumour might possibly extrude itself, as occurred in a case reported by Elsberg. The wound in the muscles and skin was closed without drainage. The operation was well borne. Complete paraplegia, however, naturally ensued, and the patient complained of a good deal of pain in the back. The urine fortunately remained free from infection in spite of the continual catheterisation which was necessary.

On Nov. 11th, 12 days after the operation, the condition was as follows: Abdominal reflexes absent; neither upper nor lower segments of the recti abdominis acting. Complete paralysis of the right lower limb; some return of power in the left lower limb, consisting of feeble flexion of the hip and slight up-and-down movements of the toes. Both knee-jerks and both ankle-jerks absent. Stimulation of the soles of the feet gave a feeble and easily exhausted extensor response, with a well-marked flexion reflex. No appreciable alteration in the sensory loss appeared. There was retention of the urine, with overflow incontinence, if the bladder was not emptied by catheter. Loss of control of the rectum was present after an aperient. Slow but steady improvement took place, and on Dec. 1st it was noted that the voluntary power in the left leg had increased, and that a certain amount of automatic action of the bladder was established, the bladder evacuating itself when it contained about 3½ oz. of urine. No urinary infection was present. A microscopic examination of the piece of material removed from the spinal cord at the operation was made by Dr. R. G. Canti, who reported as follows: "Section shows the structure of a glioma. The growth is necrotic and is supplied with large blood spaces. There is no normal tissue present." At the time of writing the patient is still under observation in hospital. The condition is about the same as when he was first admitted—that is, he seems to have recovered from the effect of shock to the spinal cord, while, as might be expected from the nature of the tumour found, no real improvement has taken place in the paralysis.

Remarks.

The first point of interest in these two cases is the striking difference in the clinical course exhibited by them. This difference may, of course, be explained by the histological characters of the tumours. The first, that of the psammoma, is characterised by extreme chronicity, eight years' duration, and but for the unfortunate result of operative interference and urinary infection life might have been prolonged for a considerable time, albeit with complete paraplegia. The second, that of the glioma, is marked by a rapid onset of symptoms, practically complete paraplegia being attained in six weeks, though premonitory symptoms had been present for some time before. The absence of pain, or at any rate of any severe pain, is a second striking fact and forms a valuable point of differential diagnosis from the more common extramedullary tumours. The inconstancy of the sensory loss in Case 1 was a noticeable feature, and is perhaps a point of some value, since extramedullary tumours usually lead by compression of the cord to a definite segmental loss, though this may often be of the Brown-Séquard type. In neither of the cases was the typical picture of a complete transverse lesion of the cord produced. Even in Case 2, where the mass reflex was typically present, some motor power still remained and distinct differences between the relative power of certain muscle groups could be easily demonstrated. It is interesting to note that a curvature of the spine was present in both cases. This may, of course, be a mere coincidence, but in view of the well-known association of spinal curvatures with syringomyelia, which is essentially an intramedullary gliosis, it may possess some diagnostic value. The lamentable termination of Case 1 emphasises the greatest danger to which these patients are subject—infection of the urinary tract—and illustrates the importance of operating early where operation is indicated. For sepsis in the urinary tract greatly diminishes the chances of successful surgical interference. Laminectomy in experienced hands is not an operation which need produce much shock, and the actual risks are being rapidly reduced to very small proportions by increasing skill and knowledge. Hence a somewhat bolder policy may be expected in the future in dealing with the possibilities of operation in doubtful cases. Localisation on the level of the tumour of course calls for the greatest care, and it is well to bear in mind the almost universal experience that there is a tendency to place the tumour too low in cases where any doubt exists as to the exact level of the growth. This tendency was well exemplified in Case 1. Cases of intramedullary tumour of the cord where removal of the growth is possible are likely to be very few, though attempts at doing so have been recorded by Potel and Veadeau and by Elsberg; the latter advocates an incision being made into the cord in order that the tumour may extrude itself and a decompression of the cord be effected. Robinson has recorded a case of intramedullary tumour of the cord which survived for two years after operation. Whether such operations are justifiable is a fair question. And it must be confessed in the two cases here recorded that the results are not very encouraging. But it is important to remember that all experienced observers are agreed as to the impossibility of making an absolute diagnosis in all cases between an extra- and an intra-medullary tumour. And the hopeless outlook for these cases, if unrelieved by operation, renders operation a perfectly just and reasonable course, if only in the hope that the tumour may prove to be of the extramedullary type and of a nature capable of removal. In skilled hands the actual operative risks should be small. Such operations, however, should only be undertaken by those who have had special experience of this branch of surgery, and, it is hardly necessary to add, not before the possibilities of diagnostic error have as far as possible been excluded.

In conclusion, I wish to express my thanks to my colleagues at the Hospital for Epilepsy and Paralysis, Maida Vale, who saw the patients in consultation with me, and especially to Mr. Blundell Bankart, who operated in both cases. To the resident medical officer, Dr. F. J. Hampton, I am much indebted, particularly in Case 2, where the results, so far encouraging, have been in no small measure due to his constant care and attention.

NOVOCAINE ANÆSTHESIA.

SOME DISADVANTAGES FROM A SURGICAL STANDPOINT.

By G. H. C. ST. GEORGE GRIFFITHS,
M.R.C.S., L.R.C.P. LOND.,
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IN writing these few personal observations I must apologise to the experts if any points mentioned seem to them elementary. No attempt has been made to describe details about injection or sterilisation of the solution used, as these and other equally important matters can be found in the larger text-books on the subject. In the following criticisms it might be thought that I am unfavourable to operating under local anæsthesia. The object of the criticisms is only to warn novices against the many avoidable pitfalls. I believe that some day, when "nerve blocking" is better understood, that any operation will be carried out under novocaine in order to avoid the always present risks of general anæsthesia. No one who witnessed the scores of resections for empyema at Haslar Hospital during the late scourge could doubt the brilliant future of local anæsthesia.

Preliminary Precautions: Strength of Injection.

An exceedingly important detail from the surgeon's standpoint is the careful preparation of the novocaine solution previous to injection. As this is frequently dispensed by men unfamiliar with asepsis, the risk of possible sepsis in the wound after operation must be considered. A clean but "septic" glass stopper or bottle may result in many heart-burnings.

Another difficult and delicate subject that is apt to arise is the anæsthetist's surgical cleanliness. Anæsthetists can grow careless over their asepsis in administering subcutaneous injections. Granted that these two extremely important points are attended to, the mode of injection may now be briefly described.

The use of novocaine solution in 2 per cent. and 5 per cent. strengths is recommended by various authorities. In experiments at Haslar Hospital perfect anæsthesia was obtained with 0·5 per cent. solution of novocaine, and this strength was adopted as routine for all operations performed under local anæsthesia. Each ounce of the solution had 5–10 minims of adrenalin (1–1000) added to act as a hæmostatic. These local measures were supplemented by a hypodermic injection of scopolamine gr. 1/150 and omnopon gr. 1/6} about 15 minutes previous to making the incision. This was sufficient to make the patient dazed or extremely sleepy. Occasionally a larger dose might have been given with benefit. The advantage of administering the hypodermic of scopolamine and omnopon, especially in nervous and apprehensive patients, is indisputable.

Difficulties at Operation.

To operate really successfully under novocaine requires more precision, neatness, and surgical skill than under general anæsthesia. A rough and clumsy operator could never succeed, except in frightening and giving considerable pain to his patient. Perhaps the most vital point to remember is the exact limits of the area of anæsthesia. For this the closest coöperation with the anæsthetist is essential to prevent the patient suffering unnecessarily. There are also certain characteristic minor difficulties which practice can alone render familiar. For instance, following the cutaneous incision, the underlying tissues never look normal owing to a peculiar œdematous and mucoid appearance of the fat and muscle. To this may be superadded an unnatural blanching of the same structures if adrenalin is used with the novocaine solution. These masking and deceptive appearances may result in anatomical errors being made until the operator is familiar with them.

Again, the non-relaxation of muscular tissue is bound to hamper the operator both in his speed and manipulations. In reference to speed, my average time for a Bassini's radical cure of hernia is 15 to 20 minutes, but is increased through the difficulties already mentioned to 25 to 30 minutes under local anæsthesia.

Special Post-operative Complications.

These may be divided under two headings: (1) Local; (2) General.

1. *Local complications.*—In this group reactionary hæmorrhage must be mentioned. I met this complication in a small percentage of cases operated on, although the proportion was always higher than with general anæsthesia. The hæmorrhage was never alarming nor serious, but varied from an extensive ecchymosis of the skin around the incision to a fair-sized hæmatoma in the cellular planes. Reactionary hæmorrhage always occurred in novocaine anæsthesia to which adrenalin had been added, the hæmostatic properties of the adrenalin being so effective that it occluded temporarily even the smaller-named arteries and veins. The occlusion obviously was due to vaso-motor constriction, and not to thrombosis, as I have often seen the blanched gaping ends of the small arteries pulsating, but showing no vestige of clot in their lumina. Eventually the vaso-constriction passes off, with the liability to reactionary hæmorrhage from the smaller-named vessels unless

ligatured There are two ways to prevent the possibility of this complication firstly, to withhold the adrenalin altogether This is certainly the safest method to avoid reactionary hæmorrhage It is a curious fact that primary hæmorrhage in the incision is far freer with novocaine alone than with a general anæsthetic The alternative remedy is to rub any probable sites of small named vessels to promote hæmorrhage with a view to applying a ligature to each unruly point discovered

Another phenomenon that appeared in practically all the cases operated on was a serous discharge from the incision This usually ceased about the seventh or ninth day In itself the discharge is unimportant as regards the future scar, except possibly when Michel's clips are used In these wounds the cutaneous margins are approximated so closely that no serous exudation can escape Serum collects in the field of the operation, and is further increased by osmosis from the neighbouring tissues by the salts of novocaine and adrenalin remaining in the tissues after operation In time the tension produced along the line of clips results in the Michel s clips being torn out or displaced The mechanical irritation produced, together with the fact that it is impossible to swab the incision with iodine owing to the presence of the steel clips, may result in sepsis of the wound at a later date The palliative remedy of removing a clip or two does not enhance the beauty of the scar It is far better not to use Michel s clips at all The last local complication to be mentioned is the presence of intense pain in the site of the operation which comes on some hours after the operation

2 *General complications* —Alleged insomnia was so common among my patients that it was proverbial for each patient to state next morning that he had not slept a wink The nursing staff had special orders to look out for insomnia, but the general rule was for patients to sleep for several hours the night after their visit to the theatre Intense headaches were also noted in a few cases Rather severe pain was often complained of in the lumbar region, especially with inguinal operations The theatre table was usually blamed for this symptom, although localised nerve shock may explain this more accurately Thirst as a symptom was frequently present during the actual operation, whereas flatulence appeared equally commonly on the following day

Retention of urine was far commoner after novocaine anæsthesia than after similar operations performed under a general anæsthetic, the frequency of the retention depending partly on the roughness of the surgeon in handling the parts

Reference must be made to chest complications During the years 1918-19 there was quite a long series of cases with coughs and bronchitis at Haslar Hospital following general anæsthetics It was partly to avoid chest phenomena that I adopted local anæsthesia so frequently Whether the years mentioned were especially prone to coughs and colds I do not know, but the number of chest complications under novocaine anæsthesia were almost as great as those that followed general anæsthesia An interesting but curious post-operative symptom was the appearance of a definite, but slight tint of jaundice in the conjunctivæ The jaundice set in always on the second day after the operation and occurred in at least 30 per cent of cases It eventually disappeared at the end of the week It never extended to the skin nor other mucous membranes The fæces were of normal colour, whilst bile pigments could never be found in the urine

The pathology of the condition requires investigating as only two similar cases followed general anæsthesia

Points in Relation to Special Operations

Lastly, there are two or three operations that require special mention In performing radical cure for hernia no painful stimuli need be felt by the patient until the neck of the sac is reached Any pulling on the neck almost always produces a momentary painful sensation for the patient The pain is never unbearable, and can be greatly reduced by gentle handling In operating for varicose veins it is doubtful whether the addition of adrenalin is a help to the operation Comparatively large veins, even an internal saphena, are so reduced in size by vaso constriction that some doubt may be expressed as to whether a small branch is being dealt with instead of the original vein to be operated on For hæmorrhoids novocaine anæsthesia cannot always be relied upon to give perfect anæsthesia To this must be added another handicap the non relaxation of the sphincter ani

Medical Societies.

ROYAL SOCIETY OF MEDICINE

SECTION OF PATHOLOGY

A MEETING of this section of the Royal Society of Medicine was held on April 20th Professor W **BULLOCH** the President, being in the chair, when Dr J A **MURRAY** demonstrated charts and sections of three New Growths from the Rabbit with which Autologous Transplantations had been carried out The bearing of the results on the treatment of cancer was discussed

Dr W W C **TOPLEY** read a paper on The Site of Formation of Antibodies and Dr H **LYON SMITH** one on Direct Hæmolysis a Test for Bacterial Toxins and for the Quantitative Estimation of Bacterial Vaccines

The Ætiology of Appendicular Concretions

Professor S G **SHATTOCK** made a communication in which he gave the results of the systematic examination of 25 concretions, the examination being carried out by delamination under water the concretions had at no time been allowed to dry When an arbitrary centre of the size of a hemp seed was reached this was cradled in glycerine between slide and cover glass, and studied microscopically In no instance was any nucleus present, the centre being of the same kind as the rest, and consisting of the undigested residues of plant tissues In two or three the number of stiff pericarpal hairs (like those in flour and oatmeal) was notable, but in no instance were they sufficient to constitute a nucleus after the manner of the oat hair concretions sometimes met with in the colon In no example were any particles of steel or of the enamel flaked from cooking utensils present The absence of these was opposed, therefore to the suggestions that had been put forward in regard to the ætiology of appendicitis in general—viz , that its increase was due to the introduction of enamelled ironware or of the milling of flour by means of the cylindrical rollers of steel now almost universally used An examination of the contents of 100 appendices taken from subjects over 40 years of age, and of 25 from those between the ages of 15 and 25 dying from causes unconnected with the appendix, gave equally negative results in this respect In a few of these small fæcal pellets were met with, which might be regarded as appendicular scybala Such appeared at times to furnish the starting point of concretions The ætiology of concretional formation, the speaker thought, resolved itself into neuromuscular faults of the appendix, a matter of much interest in regard to ectasia and constriction of the œsophagus, stomach, and intestine The entry of fæcal material into the appendix was presumably helped by the contraction of the cæcum upon its contents, whereas the exit depended upon the appendix alone

The factor of mechanical kink might be viewed as an exceptional one, since in concretional forms of appendicitis the organ retained its usual curvatures As to roller milled flour itself, the finest was passed between as many as 13 pairs of revolving steel cylinders yet Professor Shattock had found that no inorganic iron could be chemically demonstrated in it The skiagraphy of concretions after being taken out of the excised appendix, and not allowed to dry, or while still in the excised organ, the speaker found, gave results too variable to prove a negative in clinical application If the deposition of calcium carbonate and phosphate in the stercolith was at all pronounced, a laminated picture was equally so; but if little, the picture was so faint that such a concretion would certainly escape observation in the living body. If the appendix, again, happened to lie behind the cæcum the picture would be obscured by the contents of the latter.

SECTION OF ELECTRO-THERAPEUTICS.

The Mackenzie Davidson Memorial Lecture.

A meeting of this section of the Royal Society of Medicine, held on April 16th, was devoted to hearing the first lecture of the foundation established to perpetuate the memory of the late Sir James Mackenzie Davidson, delivered by Sir Ernest Rutherford, F.R.S. The chair was occupied by Dr. A. E. Barclay, the President of the section.

Sir Ernest Rutherford opened with a warm eulogy of the work done by Sir James Mackenzie Davidson, both in the direction of rendering the whole matter of radiology a subject of greater scientific precision and dependableness, and in elevating it to the position at which it has arrived as a much-requisitioned speciality. He said its followers had now arrived at a parting of the ways: the old haphazard methods, inseparable from a laborious emergence, would no longer suffice if real progress was to be made. Hitherto there had been no systematic teaching of the subject, but individual workers had surmounted the difficulties, and had acquired by much labour a working knowledge of the physical as well as the medical side. He referred with great satisfaction to the establishment by the University of Cambridge of a diploma in radiology and electrology, for which some 30 students in London had already entered. Until the scheme was well established it would be well, he thought, to institute instruction in the subject at two or three convenient centres. Lectures were now being given in London and Cambridge.

The Effects of Radiation on Matter.

The second part of the lecture was devoted to an exposition of Sir Ernest Rutherford's views on certain aspects of the effects of radiation on matter. The effects of X rays in various treatments were similar, in many respects, to those of the beta and gamma rays of radium, but in some cases radium was preferable on account of its ease of concentration on a particular region. The effects of X rays were probably not due to the rays themselves, but to the power possessed by the radiation to eject from matter electrons at a prodigious speed. Some years ago Mr. C. P. R. Wilson, of Cambridge, devised a method by which the trail or track of the ejected electrons could be traced and photographed, and the lecturer exhibited the technique. He compared it to the tracing of the track of a tornado by the path of destruction it left. To secure these remarkable pictures the rays were passed through a gas super-saturated with water vapour, and the electron-path was marked by a chain of minute water droplets. He considered that the rays possess the power of chemical dissociation of a fairly close chemical combination, like water; and that they also have the power of association or recombination, and he entered with attractive detail into his reasons for this view. The effects seen in water could safely be regarded as occurring in the human body when the rays were applied to it, except that the amplitude would be very much reduced, and not every part would be hit by the electrons. The main problem of radiology was to find out the conditions under which the rays passing into tissue would destroy the cells or the foreign organism, with the minimum of danger to healthy cells. Possibly the radiation might, in the case of a few organisms of disease, have the power of differentiating between the injurious cell and the healthy one; and he thought it ought not to be altogether impossible, by the introduction of certain salts or certain solutions into the patient, to produce chemical reactions which would not occur normally. Some such process seemed a condition of further definite advance in the therapeutic use of the rays. He hoped there would continue to be carried out earnest study of the subject, and that the coöperation between the physician, chemist, and physicist would be even more intimate than heretofore.

Cordial thanks were accorded to Sir Ernest Rutherford for his lecture, on the proposition of Sir Archibald Reid, seconded by Dr. Thurstan Holland.

SOCIÉTÉ DE THÉRAPEUTIQUE DE PARIS.

Severe Gout.

At a meeting of this society on March 10th, Dr. Guelpa showed a case of very severe Gout on the way to recovery. The patient was a woman, aged 34, who had suffered from the disease for the last ten years. When she first consulted Dr. Guelpa last November she presented almost complete ankylosis of the hips and knees, less advanced ankylosis of the shoulders, elbows, and feet, and some limitation of movement of the vertebral joints. Both hands showed a dislocation inwards of phalanges on their metacarpals, and both wrists showed an ulnar semi-dislocation. In the right hand the dislocations were more marked than in the left. Owing to the advanced ankylosis of the hips and knees the patient was unable to sit down and could only walk with difficulty. The following treatment was adopted. The patient was purged for four days in succession, and during this time was deprived entirely of food. She was then given an almost exclusively meat diet for four days. In addition muscular exercises were ordered, consisting either in walking chiefly uphill or in mechanical exercises. A drink was prescribed containing five or six drops of phosphoric acid in a glass of boiled water. At the end of a month considerable improvement had taken place and the starvation period was then prolonged till the sixth day, and the purges were given every two days with a beneficial result. Photographs and skiagrams taken at the commencement of the treatment were shown to prove the gravity of the attack and the remarkable improvement produced by the treatment.

Dr. G. Leven also showed a case of Severe Gout which had been cured for ten years. The patient was a man, aged 63, who had suffered from gout from the age of 18 to 53, the attacks becoming worse each year and being complicated by angina pectoris and intercostal neuralgia. At the commencement of treatment in 1909 he had complete loss of power in both hands and feet and there was a large tophus in the left elbow. The weight was then 101·2 kg. An almost complete cure was effected by diet without any drugs in the course of two months. The weight was now 89 kg.

The Treatment of Oxyurids by Intestinal Irrigation of the Sulphurous Spring Water of Luchon was described by Dr. F. H. Pelon, who alluded to the recent communication by Dr. Leven on the treatment of oxyurids by eau d'Enghien.[1] He attributed the beneficial action of the water to a slight extent to the sulphuretted hydrogen, and to a greater extent to the sulphites and sulphides, but mainly to the sulphur which was present in a natural state in the water. Although he regarded intestinal irrigation as the essential part of the treatment for oxyurids, he considered that ingestion of sulphurous water was also beneficial, as it had an undoubted action on the worms living in the small intestine, where fecundation took place.

Two cases of Fistula in Ano cured by Local Applications of Carbon Tetrachloride were reported by Dr. Goubeau, who said that the method might be tried with advantage before surgical intervention.—Dr. Jacquemet and Dr. Goubeau enumerated the following therapeutic uses of carbon tetrachloride, which Dr. Jacquemet had studied since 1906: 1. In surgery, in which it was a first-class antiseptic. It could be used for preparing the surgeon's hands and field of operation in a solution of iodine 1 g., CCl_4 100 c.cm. For protecting the surgeon's hands a solution of 1 g. of indiarubber in 40 c.cm. of the iodine solution was employed. It could also be used for keeping instruments and for the disinfection of infected wounds. 2. As a parasiticide. 3. In dermatology for the treatment of seborrhœa, pityriasis, acne vulgaris, and acne rosacea, either alone or with equal parts of xylol or ether.

Dr. Crespin and Mlle. Athias read a paper on Autohæmotherapy in Anæmia. In cases where normal horse serum and other measures had failed the method had produced considerable improvement in 48 or even 24 hours with a moderate and sometimes a considerable increase of red cells and occasionally of the leucocytes. Only a small quantity of blood was required:—viz., 5-10 c.cm. in adults and 3-5 c.cm. in children. In most cases a single injection was sufficient and it was only exceptionally that a second or third was needed. In the case of anæmic infants whose blood could not be obtained, their mother's blood was injected. It was a remarkable fact that the injections were only successful when the mother was markedly anæmic, no results being obtained when she was plethoric. That was due to the fact that the blood of anæmic persons contained active hæmatopoietic substances, the power of which was probably exalted by passage *into the subcutaneous tissue*

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[1] The Lancet, March 6th, p. 553.

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION

A MEETING *of this association was held at 11, Chandos* street, W , on April 20th, Dr HELEN BOYLE in the chair

Dr LOUISA GARRETT ANDERSON, formerly chief surgeon at the Military Hospital, Endell street, gave an account, illustrated by lantern slides of the work at that hospital from 1915 to 1919 She stated that the surgical work fell into three groups In 1915 to 1916 large numbers of head wounds were received, and fractured skulls with every kind of complication, were treated , in 1916 and 1917 compound fractures of thigh were numerous, *while in 1918 a fine series of* penetrating wounds of joints—especially the knee joint—were admitted She emphasised the valuable results obtained by the use of bipp, which was first tried in 1916 It was used afterwards for a large number of cases of compound fracture and always with the best results It replaced *other* disinfectants It minimised the ward work enormously, as cases which previously had been dressed twice or thrice daily were left undisturbed with bipp for a week or more *It apparently altered the prognosis of* cases, and shortened the time of treatment in hospital Over 26 000 men passed through the hopsital, and 7000 operations were performed, 300 beds were set aside for orthopædic cases The speaker discussed the advance in the treatment of fractured thighs and wounds complicating joints By disciples of Sir Robert Jones—notably Major M Sinclair and Major J Everidge—the treatment of these cases had been revolutionised In 1914 a case of compound fracture of the femur *was a source of infinite anxiety* to the surgeon and great suffering to the patient, it meant dressings at frequent intervals, drainage tubes constant operations *for the* removal of sequestra, and, at the end of months of misery, a weak leg, considerably shortened, possibly with a stiff knee The modern treatment of thorough preliminary investigation and cleaning, followed by the application of bipp to the wound, suspension on a net bed or a Balkan frame, a well fitted Thomas splint, and early movements of the knee, was incomparably better The evolution of technique for dealing with penetrative wounds of joints *was equally striking In 1918 it was not uncommon to* regain a full, or almost full, range of joint mobility

CARDIFF MEDICAL SOCIETY

A MEETING of this society was held on April 13th, when Dr R PRICHARD read an interesting note on some cases of Fourth Disease (Dukes) which had come under his notice

Dr JEFFREY JONES showed a patient with Nodules on the *Legs, Hands, and Arms The first symptoms* had been œdema of the legs followed by nodules, and later by a similar condition *in the hands and arms* The patient was an Arab Dr Jones discussed the diagnosis and considered the following possibilities—syphilis, beri beri, and leprosy The Wassermann was negative there was no anæsthesia and there were no organisms on microscopical examination after removal of a nodule The Lister Institute of Preventive Medicine reported it to be a "spindle celled sarcoma of vascular *origin* '—During the discussion which followed Dr D J HARRIES *suggested the possibility of Baghdad* boil, and advised looking for Leishman Donovan bodies He stated that this condition may resemble a *growth on section*

Mr GEARY GRANT reported cases of Sarcoma of the Ulnar Nerve removed without *ill effect and of Secondary* Suture of the Ulnar Nerve He also showed a skiagram from the case of a man suffering from a nodule fixed to the skull Egg shell crackling was present, the patient having been previously operated upon for sarcoma of the humerus —During the discussion which followed it was generally agreed that the growth was from the meninges and that *removal* was not possible

Mr H G COOK showed a case of Sprengel's Shoulder and a specimen *of Ureteral* Calculus

Mr A W SHEEN showed a skiagram of a case of Sprengel's Shoulder and another *of a* Fractured Patella in a man who went on playing football for 20 minutes after the injury

HUNTERIAN SOCIETY —At the annual general meeting of this society held at the School of Oriental Languages (London Institution) on April 28th, the *following* were nominated by the council as Honorary Fellows Sir Archibald Garrod, Sir W Arbuthnot Lane, Sir George Newman

Reviews and Notices of Books.

INDUSTRIAL MEDICINE AND SURGERY

By H E MOCK, B S , M D London and Philadelphia W. B Saunders Company 1919 Pp 846 42s

THE habits and customs of society are so closely intertwined that changes affecting any part of the whole must influence the rest The productive work of the world with a steady and increasing insistency is *being gathered more and more within the walls of great* industrial establishments, expensive and specialised plant increases in complexity year by year, even agriculture, the greatest *of* all industries, is rapidly becoming wholly dependent on factory made machinery Where the plant is, there are the workers gathered together in ever increasing numbers, here they live that portion of their lives which makes them of economic value to the State, here they enjoy health or contract illness and sustain accidents which limit their usefulness The questions for the medical profession *to day are Does it know how this illness is contracted?* Does it know how to reclaim the disabled to be again wage earners? Does it know how life is lived within factory walls? We have in these columns previously pointed out the urgent need for industrial medical service, and *declared that in this country we are falling* behind in developing such a service

Production is the urgent need of the moment, production *depends on the health and activity of* labour Apart from labour itself, no portion of the community could do more to help than the medical profession if its industrial service were organised first, for selecting workers for their work—for preventing a C 3 person from overstrain at a process *needing* A 1 *labour, or an* A 1 worker being wasted on a C 3 process, secondly, for maintaining in health and vigour those selected, and lastly, *for returning* to useful work those whose health or limbs are damaged in the battle of life The need, as judged by news and by publications which reach us, seems to be appreciated more in America than in this country Here attention has been concentrated on *diseases peculiar to industry*, such as lead *poisoning*, anthrax, and dust phthisis , and there is a tendency to lose sight of the forest while paying attention to those few small and comparatively insignificant trees Yet we are aware that great advances were set on foot by our Ministry of Munitions, and that we possess an Industrial Fatigue Research Board We hope that our medical literature will soon show signs of industrial activity Meanwhile, the pages *of the Anglo American Journal of Industrial Hygiene* are chiefly occupied by American authors Quite recently we drew our readers' attention to a Government report issued by Washington on the medical and surgical care of industrial workers,[1] and we have *now before us a book* in which the industrial position is *plainly set forth* by Dr Mock, an industrial medical officer, who tells his own experience, *both startling and convincing*. He points out how the profession is ignorant of industrial work, its scope and possibilities "*Recognition of the relationship between* conditions in industry and the health of the people will become more and more essential in the teaching *of medicine* in the *future*." All that the profession knows, all it can do, should be at the disposal of the worker To morrow the State may have to enforce it, to day the privilege lies with the employers to ensure it, and the privilege carries with it economic gain and a *contented personnel* Dr Mock makes no claim he cannot support, and he gives figures which prove that through one branch of medical work alone—the careful examination of all applicants for work—after the cost of *entire* medical service was deducted, there accrued *to the employer an annual* profit of over a quarter of a million dollars through examining 118,900 applicants After that all is profit the improved health and greater efficiency , better time keeping; the elimination of septic injuries and lessened compensation; the increased output resulting from fitting round pegs into round holes; the sickness stayed by timely treatment; the accidents prevented by safety-first methods. Yet, again, the experience of a large railway corporation is quoted, who found that "the reduction in time lost due to immediate and competent medical care more than offsets the expense of this work." The wonder is that employers are so slow in developing and adopting this most paying proposition.

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[1] The Studies of the Medical and Surgical Care of Industrial Workers Public Health Bulletin No 99 1919 Washington

The doctor in the past has waited for the patient to come to him. More and more is preventive medicine, with its great vision of health, pointing out that the doctor must be brought to the patient before he is a patient. Certainly the surgeon must be brought to the injured instead of the injured to the surgeon. In battle this may be impossible; in industry only organisation is needed and a surgeon on the spot. "Preventive surgery is a direct outgrowth of human maintenance in industry." Industry provides the means by which the health of the community can be easily controlled in groups, the means by which the gospel of health and the prevention of disease can be disseminated in every home in the land. Neglect to use means by those who possess them, neglect to employ talents, always has its nemesis. If employers continue to neglect their opportunity now as they have done in the past, let them not blame others than themselves when remorseless fate under whatever guise dethrones them. Ignorance of the facts will be no excuse, for the facts are known. All have stood aghast at the casualties of war, but after giving chapter and verse for his conclusion, Dr. Mock writes: "It may be safe to assume that the total number of amputations suffered by men in Pennsylvania's army in the field of war will be considerably less than the total number of amputations suffered in Pennsylvania's industries over an equal period"; and this industrial "list of honour" is constantly with us, and extends beyond the field of surgery over the whole region of medicine.

Dr. Mock's book deviates, as he points out, from the usual character of a text-book; it sets forth the reasons for, and the practicability of, industrial medicine and surgery. He tells what can be done from experience of what has been done; and he tells how it has been done; how the lives and limbs of workers can be conserved; how those, who through daily strife are disabled or maimed in health can be reclaimed to comfort, contentment, and efficiency. At times he writes rather as the apostle of a new creed than as a scientific teacher; for the spirit of the pioneer is upon him, the spirit of one who has found a great productive land, and would have others follow where he has blazed the trail.

Dr. Mock is essentially an industrial surgeon. He feels the great need to industry of preventive surgery. He is at his best when telling of his own work and his own organisation. What could be more convincing than his advocacy of iodine as first-aid treatment for every abrasion or cut however slight, with absolute prohibition of washing or other manipulation, when supported by such figures as these:—

—	1912.	1913.	1914	1915	1916
1. Total number of accidents.	2693	4970	5971	7760	7925
2. Total number of infections (95% hands).	772 (28·6%)	710 (14%)	655 (10%)	586 (7·5%)	610 (7·6%)
3. Infected cases where iodine was used in department and then reported at once to doctor.	No record.	18	16	5	10
4. Infected cases where iodine was not used in department but reported at once.	,,	28	28	12	12
5. Infected cases where these rules were not observed.	,,	668	611	569	588

He has also devoted much attention to the tuberculosis employee, to his detection and treatment. Particular stress is laid on after-care for the arrested and apparently cured, who he maintains should not be recommended for farm-work, for which they are not physically fit, but should be returned to their own skilled industry through the medium of model factories attached to every State sanatorium. Six years ago in this country action on these lines was advocated; the war intervened; we still wait. Compensation, insurance, and medico-legal phases are dealt with on broad principles; excellent cases are given, and valuable instances are quoted. The author desires compensation extended. "It can be irrefutably assumed that if compensation was extended to include all sickness, as proposed in health insurance, it would not only advance industrial medicine, but all medical practices. In fact, a beneficent system of socialised medicine would rapidly ensue."

When, however, Dr. Mock turns aside to speak of industrial medicine, of ventilation, of feeding, dust hazards and poisons, he is less convincing. He writes rather as one who has got up his subject, and we frankly consider he would have done better to have called his book Industrial Surgery and omittted all else. The book is well planned, but could have been usefully shortened by eliminating repetition and avoiding a tendency to classify duties of officers and methods of procedure. Much of this reads like efforts at appearing precise where no real precision is attained—efforts which the author was evidently too busy to edit sternly. A valuable and comprehensive bibliography is given at the end, and this is followed by the one blot in the book—an imperfect index. We thank Dr. Mock for finding time to give us this book, and recommend it to all members of the profession (too few, we fear) who take an interest in the social aspect of their work. Readers of this book will see there is work in industry for the medical profession to do.

INDUSTRIAL NURSING.

By F. S. WRIGHT. New York: The Macmillan Company. 1919. Pp. 179. 6*s*. 6*d*.

EACH advance in modern medicine has been associated with a corresponding advance in the nursing profession. One European war coinciding with the discovery of anæsthetics led to the evolution of the trained hospital nurse. More recently personal application of preventive medicine brought into existence the health visitor. And now another great war which threw a searchlight on the conditions of industrial life has developed the position of the industrial nurse whose work is distinct from that of either of her predecessors. In this last case the nurse is forging ahead of the doctor, and is often installed in charge of the ambulance work at industrial establishments to which no medical officer has yet been appointed.

A book has been published in America by F. S. Wright, an industrial nurse, setting forth the importance and wide scope of the work. She states truly that "industry needs a good nurse with a knowledge of methods of social work in addition to familiarity with methods of public health nursing." The position is discussed from the point of view of small factories, and therefore much which in a full organisation belongs to welfare supervision is included, but nothing is referred to which an industrial nurse may not find herself having to face in daily work. First-aid for cases of accident and the ambulance-room work have been the prime movers in creating the industrial nurse; but, once established, her sphere of work immediately expands, for an industrial establishment is an ideal organisation through which to carry out preventive medicine for adults. Medical cases as well as injuries gather to the ambulance-room; early symptoms which represent the curable stages of disease are seen here. Four groups of cases come under observation—minor injuries and more serious injuries, minor sickness, and more acute illness. In order to deal with them friendly relations have to be established with foremen; and a first-aid ambulance corps has to be organised and taught the importance of non-interference. From this beginning education in health widens out; and education is required, for "we cannot move people along the road of progress one bit faster than they see the need of being moved." The work does not consist in meeting a series of great emergencies, "as in reality the spectacular seldom does and never should happen", it consists rather in searching out what "is wrong, either in the health or habits of the worker, in his work itself, or in his surroundings or associates" The processes in the factory must be understood, the home conditions of the employees must be studied Coöperation must be established with outside agencies, medical practitioners, hospitals, dispensaries, charity organisations, health officers, creches and welfare centres, school medical officers, labour exchanges, religious bodies, lodging and boarding house keepers Health talks in the dinner hour, informal gatherings of nursing mothers, home visitation of the ailing, organisation of recreation, supervision of the canteen and starting domestic cookery classes, all come within a nurse's sphere of activity Then there are careful records to be kept of accidents and illness, and investigations to be made from these records into causation and prevention The condition of the sanitary accommodation is her care, the cloak room provision and means for drying wet garments must be looked after, the equipment and use of the washing accommodation call for attention

Each of these matters is discussed in practical detail in the book now under notice Employers, and we include mine owners, who have not appointed a nurse should read this book, it will be of value to the nurses whom they will forthwith engage Factory medical officers will find therein much useful information Industrial nurses already at work will obtain from it inspiration for furthering their daily activities and clear instruction as to the means to adopt

THE SOCIAL WORKER

By C R ATTLEE, M A London G Bell and Sons, Ltd 1920 Pp 286 6s,

THIS volume is the first of a series of handbooks on social service published under the ægis of the University of London Ratan Tata Department of Social Science and Administration The volume before us forms an introduction to the series As stated by the author in the preface, it is an attempt to show what are the qualifications and training desirable in the social worker Beginning with the social reform movement of Robert Owen, the author makes a concise introductory survey of the field of social service from the early Victorian era down to the recent developments of the trade unions, the coöperative societies, and the friendly societies In so doing he justly points out that the rise of democracy has changed the outlook of the social worker Formerly social work was done *for* the working classes, now it is or should be done *with* the working classes in a spirit of comradeship and not of superiority The most valuable contribution to social service which this book makes is the insistence on a right point of view The spirit of goodwill is the keynote of service

In writing an introductory volume of this character it must be difficult to decide how much to include and how much to leave out The author has, perhaps wisely, left out most of the detail, and has contented himself with a broad outline drawing Modern researches into such problems as those of poverty, factory conditions, crime, and social psychology are barely touched upon Doubtless they will be adequately dealt with in the later volumes of the series We trust also that these later volumes will give us a subject index which the present volume lacks

We recommend the book to all students who are embarking on a course of study in social service Its perusal may help to widen the horizon of medical practice

POPULAR CHEMICAL DICTIONARY.

By C T KINGZETT, F I C, F C S London Baillière, Tindall, and Cox 1920 Pp 368 15s

Mr Kingzett's aim has been to produce a popular dictionary to serve as a general work of reference for practical chemists as well as for the larger body of the public who take an interest in the subjects and substances which he describes Incidentally, the book is designed to be an advanced companion to a previous book entitled "Chemistry for Beginners and School Use" For the latter purpose it may be regarded as entirely successful The verbal accuracy of the dictionary is remarkable, we have only been able to find the single word *Kieselguhr* incorrectly given The author's claim to be a satisfying guide to those of the younger generation who are in search of knowledge is less convincing He does little more than hint at the wider views of chemistry and physics revealed by such moderns as Curie, Rutherford, and Mackower. The illustrations in the book, all precisely and accurately rendered, depict files, tripods, flasks, wash bottles, and pieces of wire gauze, while the subject of catalysts is dismissed in half a page devoted chiefly to platinum black, and the indestructibility of energy is mentioned without an explanation of its gradual degradation into its lowest form of heat To the word salvarsan is added 606 in quotation marks, but the aspiring reader would like to learn the name of Ehrlich and to hear of the 605 compounds elaborately investigated before he made his great discovery Altogether, the book as it stands may be described as a safe but unimaginative vade mecum We trust that in his next edition, which is certain to be soon required, the author will feel free to let himself go a little in the realms of chemical adventure There is one trifling error of judgment, in that two proprietary articles, and two only, are named in the text

PULMONARY TUBERCULOSIS

Second edition, revised and enlarged By MAURICE FISHBERG, M D, Clinical Professor of Medicine, New York University and Bellevue Hospital Medical College Philadelphia and New York Lea and Febiger 1919 With 100 engravings and 25 plates Pp 744

THE brevity of the interval between the appearance of the first and second editions of this book is the measure of its popularity It is well deserved Indeed, it would be difficult to find a more compact yet comprehensive review of the subject It has not, however, been brought quite as much up to date as the year of publication demands The author has, no doubt, been obliged to omit references to much recent work of doubtful value, but it is disappointing to find the names of Jacobæus, Brownlee, and Morriston Davies absent from the index of authors consulted The subject of surgical operations for phthisis, for example, is dismissed in less than two pages In his preface to this edition the author claims to have revised nearly every chapter and to have rewritten several A comparison with the first and second edition shows that he has adopted the plan of printing in italics statements of cardinal importance

New chapters on tuberculosis of the pleura and on pneumothorax have been added, and the differential diagnosis has been given more space than before Several additional plates have been inserted, illustrating the pathology of the disease, and many of the radiographic plates have been replaced by new ones The experience gained by the author between the publication of the first and second editions with reference to influenza and tuberculosis adds appreciably to the value of the present edition His view in this matter appears to be that only the mortality, not the morbidity, of pulmonary tuberculosis has been increased by the recent successive waves of influenza, and he has not seen a single case of tuberculosis engendered by influenza He possesses the courage of his convictions to a degree rare in the writers of text books In many matters he is dogmatic, but as his dogmatism is usually supported by well sorted evidence it is excusable and even helpful His verdict on such doubtful remedies as tuberculin is always incisive, and he refuses to be impressed by the volume and pretensions of the literature of any given remedy He ridicules the complexity in which the administration of tuberculin has become involved, and he refers with a smile to the practice of some authors who use "logarithmic tables for their calculations, as if they were dealing with an exact science" In his opinion tuberculin is at present given chiefly for its psychic effect—a comment which may apply to other drugs prescribed for chronic maladies

MECHANICAL DENTISTRY.

A Practical Treatise on the Construction of the Various Kinds of Artificial Dentures. Seventh edition, revised. By CHARLES HUNTER. London: Crosby Lockwood and Son. 1920. With 102 illustrations. Pp. 266. 5*s*.

THIS book has been before the dental profession for many years, and has proved of great value to those engaged in acquiring the art of mechanical dentistry. It is a little disappointing to find that the present edition has not been brought up to date, but even with this defect it is still a most useful manual.

JOURNALS.

Parasitology. Edited by GEORGE H. F. NUTTALL, F.R.S. Vol. XII., No. 2. March, 1920. C. F. Clay: Cambridge University Press. 15*s.* net; yearly subscription, £2 5*s.*—The number opens with a short note on Intestinal Helminths in Indians in Mesopotamia, by Charles L. Boulenger, who had the opportunity of examining the stools of 1180 individuals, chiefly dysentery cases. *Anchylostoma* and *Necator* are shown to be the commonest parasites (18·5 per cent.). The author calls attention to the fact that *Hymenolepis nana* is the commonest tapeworm met with in Indians, and that *Trichostrongylus* is a much commoner parasite in man than is generally supposed.—In the paper On some Nematode Parasites of the Zebra, the same author describes five species of nematodes, three of which are new (*Cylicostomum zebræ*, n.sp., *C. montgomeryi*, n.sp., and *Craterostomum tenuicauda*, gen. et sp.nn.). The author finds that the nematode parasites of the zebra consist of several species known in the domestic equines, as well as others which are only found in zebra.—In the article on a Parasitic Spiral Organism in the Stomach of the Cat, R. K. S. Lim describes a new spirochæte living in clusters within the lumina of numerous ducts and glands of an apparently normal cat's stomach. The organism, which morphologically resembles the genera *Spironema* and *Treponema*, is 4 to 8μ long with regular closely-set spirals. They were not seen in any other part of the intestines except the very beginning of the duodenum, or in any other organ. The mode of infection remains unknown. Attempts at cultivation of this organism failed. A somewhat similar organism was previously found by Bell and Ruquet in the stomach of the dog.—The article, On a Filaria, *Loa papionis*, n.sp., parasitic in *Papio cynocephalus*, by C. H. Treadgold, deals with a new filaria found in the yellow baboon imported from the French Guinea to Paris. Of the 55 animals examined, only 13 were infected, of which 10 yielded the adult forms of parasite (*Loa papionis*), while 12 contained the larval stages (*Microloa papionis*). In one case neither ♂♂ nor larvæ were present. The host does not resent the presence of the parasites; at the autopsy the internal organs appeared healthy, and even in the most extensively infested animals a distinct degree of eosinophilia was never encountered. The adults (*Loa papionis*) were usually found in the subcutaneous tissues. In the peripheral circulation the larvæ are invariably present at night, being less numerous or absent in the daytime. Three specimens of *Loa papionis* were found to be infected by bacteria. The paper contains a good description and figures of adult and larval stages of this parasite, which is also morphologically compared to *Loa loa*.—The paper On Fahrenholz's purported New Species, Sub-species, and Varieties of Pediculus, by G. H. F. Nuttall, contains a very severe criticism of the methods usually employed in the description of Anoplura. According to the author, all the species of *Pediculus* described by Fahrenholz, which are derived from different races of man and monkey, are synonymous with *P. humanus*, races *capitis* and *corporis*. All the characters upon which are based Fahrenholz's descriptions are thoroughly examined and proved to be valueless, as they are usally met with in a single lot of *P. humanus*.—The article On the Two New Gregarines: *Allantocystis dasyhelei*, n.g., n.sp., and *Dendrorhynchus systeni*, n.g., n.sp., parasitic in the alimentary canal of the dipterous larvæ, *Dasyhelei obscura*, Winn., and *Systenus*, sp., by D. Keilin, contains a description of different stages of the above-mentioned gregarines. *All. dasyhelei* differs from all the other known gregarines in possessing elongated sausage-shaped cysts of about 140–150μ long and only 20μ wide.—The paper on Spermatogenesis in *Ixodes ricinus*, Linn., by E. Nordenskiöld, deals chiefly with the cytological changes in the spermatids whilst developing into the full-grown spermatozoa, the latter, in the ticks, being of very aberrant shape, differing considerably from the typical flagellate form.—Mallophaga from South African Birds, by G. A. H. Bedford, contains a description of *Neomenopon pteroclurus*, n.g., n.sp., taken from a sand-grouse in the Transvaal, and of *Machaerilæmus plocei*, n.sp., collected from a passerine bird in Pretoria.—The number is concluded with a short note on Body-lice under Summer Conditions in Mesopotamia, by P. A. Buxton. It contains an account of seasonal variation in the number of lice in Mesopotamia, where during summer months the lice are very scarce, and towards the end of November suddenly become numerous. As this increase in lousiness coincides with the re-issue of winter under-linen, which is stored through the summer in ordnance dumps, an erroneous supposition prevails among the sanitary officers that the lice survive the summer as eggs in the stored clothing. The author points out the incorrectness of this view, as it is well known that the duration of the egg period is very short.

La Medicina Italiana. Istituto Editoriale, Milan. L.2.50.—There seems to be an influx of new Italian medical journals lately, and the first issue of this monthly periodical came from the press at Milan last January, consisting of 78 pages. The entire front cover is taken up by a photographic reproduction of Professor Augusto Murri, of Bologna, of whom there is a eulogistic biographical notice from the pen of Professor Antonio Gnudi. The collaborators of the journal are very numerous, and include most of the well-known names in Italian medicine. The papers in the present issue contain: Disease and Individuality—a Diagnostic Formula, by Professor L. Zoja; The Diagnosis of Petechial Typhus, by M. Segale; The Relationship between Infection and Immunity, by Professor E. Centanni; and the Cultivation of Tissues in Vitro, by G. Levi. A large section is devoted to discussion of present-day medical topics and news.

Il Mondo Medica. Piazza St. Croce, Roma. L.1.50.—This monthly journal entered its second year on Jan. 1st, 1920, having changed its somewhat unwieldy large quarto for a crown octavo, with a new artistic and semi-allegorical cover containing a hand grasping a flaming torch surmounted by a shield bearing a reproduction of the historic wolf suckling the infants Romulus and Remus. The editor is Professor Michele Pietravalle, Parliamentary deputy. The January issue contains articles by Professor Fichera on a case of Friedreich's disease; by Dr. Gianturco on surgical lesions of the kidneys and urinary passages; by Professor Arena on cystinuria; by Dr. G. Poppi on adenoids. Compulsory insurance against illness is discussed in an editorial with the report of the Commission appointed to deal with this subject. It may be noted that while the Commission fully recognised that a complete system of reform should include orphan and lunatic asylums, the majority were of opinion that it was not suitable to attempt too large a measure of reform at first.

L'Ospedale Maggiore. Via Ospedale, Milan. L.1.—The size of this illustrated monthly review has been increased from a small post octavo to a small quarto of about 40 pages. The editors are Professor Icilio Boni and Professor Enrico Ronzani, with Avv. Mario Rolla as editorial secretary. In the July, 1919, issue there is an editorial on the condition and salaries of nurses in England, referring to the report on this subject by the committee of the College of Nursing; no independent comment, however, is made on it. In the last number which reached us there are articles on Diabetes, by G. Vigevani; on Pulmonary Cancer, by D. Cassarini; in the August number on Tuberculoma of the Optic Thalamus, by Ugo Botelli. The illustrations are not numerous but are distinctly good.

Archivos Rio-Grandenses de Medicina. Orgao da Sociedade de Medicina de Porto Alegre. Numero 1, January, 1920.—We have received the first number of the *Archives of Medicine of Rio-Grande*, the official organ of the Society of Medicine of Porto Alegre. The journal is intended to serve as a means of communication among members of the profession in the south of Brazil, and to stimulate discussion on topics of general medical interest. It is the aim of the editors to provide a medium for recording the results of research carried out in Rio-Grande, and to collect papers on clinical and pathological subjects which would otherwise remain unpublished. No very striking original work appears in the present number. Perhaps the most interesting contribution is a short article by Professor Roger on the Rôle of the Portal Vein in Pathology. The effects of ligature and obstruction of the vessel are discussed, and the author inclines to the view put forward by Le Play and Ameuille that cirrhosis of the liver is secondary to infection of the spleen.—In a paper on Toxic Effects following Arsenical Medication in Syphilis Dr. Ulysses de Nonohay advances the theory that adrenal insufficiency is responsible for many accidents. This insufficiency is said to be due either to the virus of syphilis or to the depressing effect of arsenic on the gland. The conditions for which the suprarenal is called to account are varied, since they include urticaria, œdema, hæmorrhages, lepto-meningitis, meningitis serosa, paralysis, blindness, syncope, and epileptiform convulsions.—The remainder of the journal is concerned mainly with detailed studies of clinical cases by various professors of the Porto Alegre clinic. Interspersed between them are notes on treatment, medical aphorisms from various sources, and an epitome of current medical literature.

THE LANCET.

LONDON: SATURDAY, MAY 1, 1920.

Hospital Principles.

THE announcement by the Minister of Health in the House of Commons on Wednesday of last week that he had given his consent to the establishment of a municipal hospital at Bradford may have created a flutter in the world of hospital administration, for it has been hailed by the daily press as a kite showing the direction of the wind in the high places where decisions are made. The decision certainly shows which way the wind is blowing in Bradford. But this was hardly in doubt before. The wind has for long blown from the bracing quarter of municipal administration in that great worsted emporium of 250,000 inhabitants. It is not the war or post-war conditions that have killed the voluntary system in Bradford. Its Royal Infirmary, an old and insufficient fabric, has long been inadequate for the needs of the city, but funds for rebuilding on a new and better site were coming in none too fast before the war. Since then the Poor-law hospital of St. Luke, itself standing better than the infirmary, has been much enlarged and ennobled as a military hospital. The total beds of both are needed, and urgently needed, for general medical and surgical cases. Here is a situation in which a municipality of advanced views, already accustomed to the support of medical institutions on a large scale out of local rates, was sure to intervene. Dr. ADDISON describes their scheme for the establishment of a municipal hospital as the one practicable method of providing the institutional accommodation necessary to meet the needs of the city. "I decided as I did because it was the only way of meeting the necessities of the case," were his actual words. The shouldering of the whole hygienic burden by citizens for citizens is the task chosen of its own free will by Bradford, and endorsed without question by the central authority with a wise acquiescence in the decision of local opinion.

While it would be hard to over-estimate the significance of Bradford's lead, it would be perverse to see in Dr. ADDISON's attitude any change of policy in regard to voluntary hospitals elsewhere. No particular perspicuity is needed to guess that the Advisory Committee over which Lord DAWSON presides will be willing to suggest more power for local sanitary authorities in providing hospitals where such are needed and for coördinating the work of all the institutions lying within their borders. And it is equally certain that the Health Services Bill, when it is drafted, will provide the statutory powers for putting such recommendations into effect. But good faith and common sense alike will ensure the survival of any voluntary unit willing and able to take its place in the scheme. Regional survey must form the basis of coördination; there can be no talk of the creation of new units when sufficient material of all kinds, whether of bricks or hands or brains, cannot be had for love or money. And regional survey must take account not only of the community's needs in medical, surgical, and special beds per 1000 of the population, not only of the existence of trained personnel, the medical and nursing staffs and the great body of able lay administrators, but also of the local type of social service. A community trained by heredity to give of its superfluity in money or kind or personal effort will not be coerced into the penny-on-the-rates or the twopence-a-week-on-wages mould. Local habits of philanthropy are woven into the very fabric of society and cannot be unravelled without destroying the material. The ideal will be to secure, in the first place, that each area gets the hospital which it deserves, and local freedom of action will assuredly be sanctioned in so far as it results in the common good. Liberty can and will be retained under central guidance.

The cardinal principles justifying local autonomy are efficiency and avoidance of overlapping, and on these two things the Ministry of Health has insisted and remains adamant. In London, which always constitutes an exception, although an exception larger than most rules, it is agreed that there should be institutional coöperation, in return for which State-aid will have to be granted, and, for the present, on a large scale. The voluntary principle is as firmly rooted in London as the coöperative principle in the Midlands or the municipal principle in the north. To take a single example. Of the 200 infant welfare centres in London 154 are carried on by voluntary agencies, and although the focus of each is well defined its sphere of influence is often nebulous enough. The voluntary principle has many and conspicuous virtues and only one besetting sin, the deplorable failing of overlapping. Hardly any Government subsidy would be too large to offer as the price of reformation in this respect. The municipal principle never overlaps; on the contrary, it is apt to become the dog in the manger. The medical officer, who is a whole-time civil servant, jealously restrained from consultation with fellow-practitioners of his art, is too apt to lose contact with the larger professional view to the narrowing down of his outlook and interests. Research has as yet never blossomed as freely on the municipal soil. In these things there is a lesson for the wise and consolation for the faint-hearted. Medicine has obtained its greatest triumph in the foundation of a Ministry of Health and in making its voice effectively heard in the counsels of the nation. Let its disciples offer the twin fruits of efficiency and economic effort, and their gifts will not be spurned.

Scientific Cardiotherapy.

THE application of exact methods to the clinical investigation of disorders of the circulatory system has greatly enriched our knowledge of both the physiology and pathology of the circulation, and in consequence the diagnosis of cardiac disease has been rendered more exact and more rational. We publish on p. 954 of this issue of THE LANCET an interesting paper by Dr. I. HARRIS, in which an attempt is made to apply the increased knowledge thus acquired to the problems of the treatment of heart disease. Dr. HARRIS commences his article with the rather striking statement that, "in spite of the progress in cardiology within recent years the treatment of heart disease is as unsatisfactory now as it was 20 or 30 years ago." Many of our readers may not be prepared to subscribe to such a sweeping statement, since the recognition of the value of large doses of digitalis in the treatment of auricular fibrillation is alone sufficient to render it an exaggeration. At the same time a careful perusal of Dr. HARRIS'S suggestive article would seem to show the need for a careful examination of the modes of action of the various drugs used in diseases of the heart and vessels in the light of the newer knowledge of these conditions if we are to obtain the maximum benefit from their use. It is important to recognise that there are two distinct aspects of the circulation to consider both in health and disease—namely, the purely physical or hydrodynamic and the strictly physiological or vital. The physical conditions involve the consideration of the pressures in the different parts of the circulatory mechanism, the amount of input into the cavities of the heart at each diastole, and the actual force of systole. The vital aspects of circulatory problems concern the rate of the heart's beat, the time relations of systole and diastole, and the adaptation and adjustment of the blood flow to the needs of the organs and to varying conditions. In his search for some rational and scientific basis on which to assess the value of drugs in cardiac disease and to provide criteria or standards for their effective use, Dr. HARRIS has selected the intracardiac pressure as the most suitable means. He points out that the electrocardiograph offers an easy and accurate method for measuring the lengths or duration of systole and diastole, and he suggests that these data afford a means of estimating the relative intracardiac pressure. He assumes that a relatively long diastole in relation to a short systole signifies a high intracardiac pressure. We may refer our readers to the original paper for the reasoning on which this assumption is based, but it is of interest to note that as a result of his observations Dr. HARRIS differentiates two distinct types of heart failure, with different and characteristic symptoms and intracardiac pressures. The first of these he finds chiefly in young people with moderate hypertrophy of the left ventricle and an arterial blood pressure never unduly high, and becoming lowered when failure of compensation occurs. The heart is dilated in such patients, and the pulse-rate is high. Œdema is common and readily yields to treatment, while the arteries and peripheral circulatory apparatus in general are normal. In such cases sudden death is rare. Dr. HARRIS finds that the most characteristic feature in the different phases of the heart beat is a considerable shortening of diastole. As the pulse becomes quicker the diastole becomes shorter and shorter, while the length of systole remains nearly the same as in the normal condition. Dr. HARRIS argues that the intracardiac pressure in such cases is low, and he sees in the symptoms of this condition a protective adaptation, the rapid action serving to obviate more serious consequences. The engorgement of the veins and œdema which may appear in these cases he regards as secondary effects of an otherwise beneficial process due to the fact that the total output in rapid heart action does not compensate for the smallness of the output of a single contraction. In this type of case the adaptation which occurs is in the interest of the heart muscle, and the intracardiac pressure is low. The indication for treatment is to strengthen the heart muscle, and any cardiac tonic drug may be of use.

Dr. HARRIS'S second type of heart failure is one which occurs in patients with marked hypertrophy of the left ventricle or sclerosis of the heart muscle associated with high arterial blood pressure. Angina-like pain is common and there is no fall of blood pressure, even when general œdema supervenes. The pulse does not become accelerated and sudden death is common. By contrast with the other type the sclerosis of the arteries and general pathological condition of the peripheral circulatory apparatus are very marked features. Examined by the method suggested by Dr. HARRIS, it is to be noted that there is no increase in the pulse-rate when failure occurs in these cases, and the length of systole in relation to diastole remains the same as before the onset of failure, while the intracardiac pressure also keeps at a high level. Dr. HARRIS maintains that the adaptation which occurs in this type of failure is in the interest of the peripheral circulation, with secondary results often to the disadvantage of the heart itself. He points out that the high arterial blood pressure and the increased force of the individual beats are adaptations designed to overcome an increased peripheral resistance. Dr. HARRIS believes that the most striking clinical feature of a typical case of this kind is the absence of jugular engorgement, even when there is marked general œdema. He supposes that this is due to the long diastole, which allows ample time and space for the veins to empty themselves into the auricles. He claims that there can be no question of back pressure as a cause of the œdema, and suggests that it is more likely to originate from forward pressure. This part of his contention is perhaps a little obscure and is possibly open to criticism, as also is his dictum that the indication for treatment in such cases is to give drugs which may lower the intracardiac pressure, but which interfere as little as possible with the peripheral resistance.

The concluding portion of Dr. Harris's article deals with the effect of certain drugs on intracardiac pressure. This section is of particular interest, since in it are examined in some detail the actions of various drugs upon the heart's functions. Digitalis is so valuable in the treatment of many forms of cardiac embarrassment that it is, perhaps, not sufficiently recognised that its effects are complex and that they are not invariably beneficial. The fact that it depresses conductivity is now generally admitted, and its use in conditions of "blocking" is contra-indicated; indeed, it may induce this condition if injudiciously employed. Dr. Harris refers to certain effects of large doses of digitalis shown by the electrocardiograph, which suggest its discontinuance in any case in which they appear. He finds that medium doses of digitalis increase the intracardiac pressure, whilst large doses lower it considerably, and he brings forward some observations which show that strychnine has a definite action upon the frequency of the heart beat, lowering it in many cases and having a favourable influence on some forms of irregular heart action. Dr. Harris is of opinion that his observations prove that digitalis is indicated in cases which show his first type of cardiac failure, whereas it is to be avoided in those of the second type. In the latter he thinks that caffeine is a useful drug owing to its effect in lowering intracardiac pressure without decreasing arterial tension. At the same time he admits that many patients cannot take it for any length of time owing to its action on the nervous system; and under these conditions he recommends atropine. Even the occurrence of œdema he does not regard as indicating the use of digitalis in this class of case, and he advises puncture of the legs and the use of adrenalin. Dr. Harris's paper raises many points of interest for discussion, and puts some known conditions in a new light. On these grounds alone it should be of interest to our readers, and may well stimulate further observations on similar lines to establish, modify, or controvert his contentions.

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An Antimalarial Campaign in Palestine.

The 21st Army Corps of 70,000 men lay for nearly a year (November, 1917, to October, 1918) in Palestine, occupying the course of the river Auja from its mouth across the Valley of Sharon to the foot-hills. Several deaths from subtertian malaria occurred in December, and 20 cases of malaria were reported weekly from two brigades during January, the patients coming from an area covered with orange-groves and provided with numerous wells; they came from units camped near the wells, and were all of them men in billets near the mouths of the wells. It was clear that malaria threatened to be a great danger, and in January, 1918, Major E. E. Austen, D.S.O., was directed to make a mosquito survey of the country. The mean day temperature was below 60°F., and it was found that anopheles were not breeding in the pools and streams, but in the warmer wells, and that adult anopheles, eager to bite, were sheltering in these wells. The wells were dealt with, and malarial infections became for the time a negligible cause of sickness. It had been intended to make an April offensive, which, however, was postponed owing to events in France. Clearly, then, the 21st Corps must remain in this area during the summer, and the prevention of malaria became at once the most important problem.

The corps was situated in one of the most malarious districts, and unless extensive works were undertaken malaria would destroy the corps. The area abounded in mosquito breeding-places, marshes and pools and sluggish streams overgrown with weeds and brushwood. The natives could not live in the valley in summer as malaria was rife; much less could the new comers. Young anopheles larvæ were found on April 12th in open water. All these things had been considered beforehand. On the day the advance was counter-ordered a survey of the whole area was put in hand, and in a few days drainage works were commenced under the direction of the chief engineer, General R. P. T. Hawkesley, to whose energy the successful result is largely due. The area slopes very gently to the west. It is seamed with small ravines, in which are many springs, and drained by sluggish streams often overgrown. These ravines had to be cleared of brushwood, to be banked, to be cleaned out, and to be kept clean, so that water could always run away. The marshes had to be drained, one of them could not be naturally drained, but an old tunnel through the barrier was found and utilised. It appeared that this tunnel harboured hibernating anopheles. They were killed with two cylinders of chlorine gas—with them were killed frogs, snakes, and small birds. Large numbers of men were put on this work—the sum total of which may be numerically expressed as 222,480 men-days—and the cost is estimated at £40,000. What did this expenditure achieve? Not so much, certainly, as if the work had begun one or two months earlier, but that was impossible, plans in February being so different. But, as we have seen, no time was lost; the best was done with the time there was. In spite of it, malaria did occur. The first attacks seemed due to the appearance in June of swarms of anopheles which had been hibernating, and which appeared while mean temperature was low and before free breeding in open water had begun. The drainage works had begun too late, so these June mosquitoes were able to breed, but by August the works undertaken had become effective, the pools and so on had been drained, and larvæ and adult mosquitoes had fallen to a minimum, instead of rising to the normal maximum appropriate to the season. It is pointed out by Colonel E. P. SEWELL and Major A. S. M. MACGREGOR (who planned this campaign, and give a lucid account of it in the *Journal of the Royal Army Medical Corps* for February and March), that the very best work, limited to the English area, could not wholly prevent malaria, as some of the valleys led up to the Turkish lines and could not be denied to mosquitoes, though at great risk oiling was often carried out right up the Turkish wire. In fact, mosquitoes came over from the Turks and infected the British advanced posts.

Malaria did occur in the summer, as had been expected by all the experienced—10 per cent. of strength was lost in the 21 weeks of summer to Sept. 19th; the corps was not destroyed, as undoubtedly it would have been had it been forced to remain through the summer without anti-mosquito measures in its previous position. It must not be forgotten that General Headquarters had helped by sending the 21st Corps two malaria diagnosis stations, whose services were invaluable. The striking success of Lord ALLENBY'S coup in September, 1918, was in the main due to his skilful plan and the valour of his troops. But that his troops were there to carry out his plan is in great part due to the excellent work done in the 21st and other corps throughout his army, by the Royal Army Medical Corps to keep the troops free of the malarial infections, which have long lain like a pall over the country and prevented its profitable development. And how small was the relative cost of prevention! £40,000 to protect 70,000 men, to prevent 60,000 cases of malaria; 12s. per man for prevention. Quinine for the treatment of each case would not have cost less than 20s., and the deaths that would have occurred if the epidemic had broken out would have been a tragic loss. We are indebted to the authors of a valuable paper.

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THE COMPLIMENTARY DINNER TO SIR GEORGE MAKINS.

MAY we remind our readers that this dinner will be held on Monday, May 10th, at the Wharncliffe Rooms, Hotel Great Central, at 7.30 for 7.45 P.M., and add that there is no leader of our profession, who has more clearly merited a public compliment from his colleagues. Any of Sir GEORGE H. MAKINS'S friends, and any who have reason to know the great value to the public as well as to the profession of the services which he has rendered, will be welcome. They are asked, if they have not already done so, to notify Mr. C. MAX PAGE, 134, Harley-street, W. 1, of their intention to be present. This information is essential in order that seating arrangements can be made. Payment for the dinner (1 guinea, not including wine) to be made at the Wharncliffe Rooms. Sir CUTHBERT WALLACE will preside, and no tickets will be issued.

Annotations.

"Ne quid nimis."

LONDON AS A POST-GRADUATE CENTRE.

THE organisation of medical post-graduate education in London has now been coördinated by the Fellowship of Medicine upon the lines laid down at its foundation meeting. One of the original aims of the Fellowship was the establishment of a central bureau from which information respecting post-graduate facilities in Great Britain could easily be obtained (see THE LANCET, Jan. 4th, 1919, p. 26). This position has now been reached, and the Fellowship has become a recognised centre, at which inquiries from medical men in all parts of the world are received. Most of the correspondents wish to map out courses of work in London and the provinces. Those who not only write but arrive are growing in number, and visitors from the continent and from overseas have now acquired the habit of proceeding to the offices of the Fellowship within a few hours of their arrival. In short, the energies of a year's hard work are bearing gratifying fruit, and the post-graduate students who attended the London hospitals and schools last summer have mostly gone home with a satisfactory account of their reception. Many of the men coming over to-day from the Dominions and the United States come with personal introduction to the Fellowship from previous students, and the reputation that London has suffered under for inhospitality—a reputation which has done great harm to post-graduate work in this country—is being corrected.

The last issue of the weekly Bulletin of the Fellowship shows the possibilities of the post-graduate work as now coördinated. A student, assisted by the daily programme, can plan a course of study in any department and at almost any hour of the day, granted that the promises of the schedule are kept. Curiously enough these advantages are not being fully appreciated by the medical men in London, or even by the home country. Whilst the courses in the metropolis are attracting post-graduates from overseas and from the continent, they have not yet aroused the enthusiasm of men who are within easier reach of the facilities offered. Not long ago, when many correspondents reflected upon the obvious dearth of post-graduate facilities in London in comparison with those offered, for example, in Germany, we had no suggestion to make. Now we advise all our readers to write to the secretary of the Fellowship of Medicine, 1, Wimpole-street, London, W. 1, for a copy of the Bulletin, that each may see for himself how far the special department of work in which he is interested is met by the arrangements of the Fellowship. If he is in any doubt as to his methods of procedure he should make inquiries, and certainly if he considers that any promises are not kept he should notify the laches at headquarters.

LEAD POISONING AND COMPENSATION.

THE recent trial before Judge Mulligan, K.C., at the Holt County Court (Norfolk), of a claim for compensation under the Workmen's Compensation Act, raised in an instructive manner the difficulties which may arise in cases of alleged lead poisoning. The medical evidence, while in harmony as to the existence of lead ingestion as a toxic factor at one period in the man's history, was at variance over its bearing on his present condition.

The applicant was a man of 23, who had been employed at Melton Constable Station, from April, 1911, to January, 1919, in painting engines, using white lead and sand-paper. In December, 1915, he had an attack of lead poisoning, as certified by the late Dr. J. Skrimshire, who attended him for six weeks. For a while after this he was given other work to do, but returned to the painting in June, 1916, when he developed a second attack of lead poisoning after scraping the inside of carriage roofs. On this occasion he was laid up for four days. He had a third attack in January, 1919, which totally incapacitated him until the following March; since then he had only been able to do light work, and he now stated that he suffered from weakness in the arms and legs and pain in the abdomen. The railway company had accepted the man's statement and the doctor's certificate of lead poisoning, and had paid him compensation for loss of work during the three attacks specified. But on being sent to see Dr. Barfoot Mills, of Norwich, in March, 1919, Dr. Mills certified that he was not suffering from lead poisoning, and the compensation was accordingly stopped.

When the case came on for trial Dr. Mills gave evidence that he had found no sign of lead poisoning, but that the man was suffering from neurasthenia and weakness of the heart, and that the best thing he could do was to get back to work. The idea of lead poisoning had been so drilled into the man's mind that he put all his troubles down to that cause. In cross-examination Dr. Mills admitted that if Dr. Skrimshire was right in certifying the man to be suffering from lead poisoning he would assume the neurasthenia to be due to that. Dr. H. J. Starling, assistant physician to the Norfolk and Norwich Hospital, who examined the applicant on March 24th last, found him in a very excitable condition, with disordered action of the heart but no organic disease. The condition of the abdomen was not due to actual pain, but to nervous contraction in anticipation of pain. There was no sign of lead poisoning, but if the conviction remained in the man's mind that he was suffering from it, the probability of his cure was very slight, and the best thing for him was work. Dr. R. T. Hales, of Holt, certifying factory surgeon, said he had examined the man, but found no evidence of lead poisoning, though from his story he presumed he was convalescing from an attack of lead poisoning. On the other hand, Mr. S. H. Burton, consulting surgeon to the Norfolk and Norwich Hospital, said he examined the plaintiff on Dec. 16th last, and again on the morning of the trial, and considered that his condition was compatible with the story he gave of his history. At the present time the man was neurasthenic, and in Mr. Burton's opinion light work in the open would do him good. Although he found no trace of lead poisoning present, yet he considered that the excited action of the heart from which he suffered was brought about by the man's lowered tone due to the lead poisoning.

The judge, in summing up, commented on the great importance of the case, lead poisoning being one of the diseases which under the Workmen's Compensation Act were placed under the same category as accidents, and compensated accordingly. There was, he said, a considerable difference of opinion in the medical evidence which he had heard, but he found as a fact that Dr. Skrimshire was right when he said the man was suffering from lead poisoning, and he accepted without hesitation the evidence of Mr. Burton that his present condition was due to the lead poisoning. The doctors had all agreed in saying that the plaintiff was neurotic and that he would not recover so long as he brooded on his illness. He could not go back to painting, but there was plenty of other work suitable for him. He awarded the plaintiff 12*s.* a week, to commence from Nov. 1st, with costs.

The problem presented to the judge in this case was a difficult one, and in our opinion he decided wisely and judicially. Upon the evidence put before him it would seem clear that the applicant had certainly had three attacks of lead poisoning, and that he had quite rightly been paid compensation for these. All the medical evidence pointed to the fact that the present condition of the man was one of neurasthenia with excitable or disordered action of the heart. The judge accepted the view that the man's condition was a sequel of his attacks of lead poisoning, and at the same time recognised that light work of a different character would be beneficial to him morally, physically, and mentally. We may express the hope that enlightened decisions of this kind may become the rule in cases where neurasthenia figures in compensation cases after accident, injury, or industrial disease.

EPSOM COLLEGE: THE RISE IN EXPENSES.

THE general increase in salaries and in the cost of living, as well as the alterations in the retiring grants to masters, on the lines of the Superannuation Act of 1918, have compelled the Council of Epsom College to increase the school fees. The increases will date as from September next, and will apply to all boys, whether entering the school for the first time or at present there. For the sons of medical men the fees will be increased from 70 guineas to 100 guineas; for the general boarders from 80 guineas to 120 guineas; and for day boys from 25 guineas to £40. We can quite understand that the Council had no alternative but to make these increases in the school fees, for the loss on the working of the school for the past year has amounted to £3779 15*s.* 10*d.* The charitable contributions in aid of the Foundation cannot, of course, be expended in defraying any of the expenses of the school beyond paying for the education of the foundationers.

CATHETERISM OF THE URETER IN CALCULOUS ANURIA.

IN the *Progrès Médical* of March 20th Professor Léon Thévenot, of Lyons, has selected for commentary two cases of calculous anuria treated by a method which, so far, has been seldom employed—ureteral catheterism.

A man, aged 35 years, was admitted into hospital on May 31st, 1909. He was addicted to alcohol, and had suffered for years from attacks of renal colic, during which he did not pass urine. After an attack in 1907 he passed two pieces of gravel of the size of a small pea. An attack of renal colic with anuria began three days before admission, and only 50 g. of urine were passed on the previous evening. The left kidney was painful, but not palpable. Two days after admission the patient was cystoscoped. On the left side the ureteral catheter was arrested at a distance of 6 or 7 cm. from the orifice of the ureter; on the right side nothing abnormal was noticed. On the following day the patient passed a large and irregular calculus, and the emission of urine became normal. On performing cystoscopy again the left ureter was found permeable.

In a second case a man, aged 47 years, was admitted on May 3rd, 1911. Since 1893 he had suffered from attacks of renal colic, especially on the left side, and hæmaturia, and had passed phosphatic calculi. In 1903 lithotrity was performed for stone in the bladder. A large calculus was removed from the right kidney. In March, 1914, he was readmitted for complete anuria, following renal colic. A catheter was passed into the left ureter as far as the renal pelvis without encountering resistance. On the following day 2½ litres of urine were passed. Radiography did not show any calculus in the left kidney. In June, 1915, he had an attack of anuria lasting two days, and passed 80 g. of urine on the third day. The ureteral catheter was passed after momentary arrest at a distance of 6 cm. from the ureteral orifice and yielded a discharge of 1 c.cm. of fœtid pus. It was passed as far as the renal pelvis, from which turbid urine flowed. In one and a half hours the patient passed 407 g. of turbid fœtid urine.

How ureteral catheterism acts is not easy to say, because the pathogenesis of calculous anuria is not fully understood. The catheter may push back a calculus which is obstructing the mouth of the ureter, or it may give rise to contractions which cause the calculus to be expelled into the bladder. On the hypothesis that the secretion of urine is reflexly inhibited, the catheterism may reflexly re-establish it. Whatever be the explanation it is efficacious. Out of 40 recorded cases it was successful in 32. In the early days of the anuria Professor Thévenot thinks it is absolutely indicated. The injection through the catheter of boric solution or glycerine seems to have a favourable action in re-establishing the secretion of urine, which reappears immediately or in a few hours. Some writers have seen the anuria recur after removal of the catheter; therefore it ought to be retained for a certain time. If catheterism fails it may be repeated several times, as long as all signs of uræmia are absent. If the surgeon does not see the patient till about the fifth day catheterism may still be tried, but if it fails nephrotomy should be immediately performed. After the fifth day, or if the slightest signs of uræmia have appeared, Professor Thévenot recommends nephrotomy. Should catheterism be performed on one or both sides? It has rarely been performed on both sides, and the extra benefit derived does not seem to be marked. Professor Thévenot thinks that this procedure uselessly prolongs the operation. It should be reserved for cases of bilateral calculi or of failure of unilateral catheterism. Usually it is sufficient to catheterise on the side of the morbid phenomena, whether definite renal colic or dull pain. In numerous cases it has not only relieved the anuria, but led to the elimination of the renal calculus and the avoidance of nephrotomy.

THE BEST TYPE OF ARTIFICIAL LEG.

THOUGH an artificial limb must obviously conform to certain definite requirements, there is still margin for variation in the materials used in its manufacture. Moreover, the adjustment of the conflicting claims of great strength and light weight must be made with some reference to the expense involved. It is interesting to note that the weight cannot be reduced below a certain optimum figure—estimated at 4 to 6 lb.—otherwise the limb becomes difficult to control under unfavourable conditions such as heavy gusts of wind or long wet grass. In a letter addressed to Sir Arthur Stanley, Mr. Edred M. Corner, surgeon in charge of the Artificial Limb Department at St. Thomas's Hospital, states that over 90 per cent. of men with above-knee amputations experience greater benefit from the light metal artificial limbs used at this hospital[1] than from the wooden limbs provided by the Ministry of Pensions, and he pleads for the official issue of a metal leg. The main difficulty appears to be the expense, since not only is the initial cost higher, but the repairs are more difficult and costly, though, it is claimed, less frequently required. On the other hand, men can apparently do more work with less fatigue, and acquire balance and control of complicated movements with greater ease with a light metal leg, which is said to be specially useful in hot climates. A suitable leg for above-knee amputations can be turned out in five weeks at a cost of £27. An artificial arm made of light metal is already issued by the Ministry of Pensions, and the official adoption of an approved pattern of metal leg would seem a desirable outcome of the successful experiments at St. Thomas's Hospital.

SECONDARY SYPHILIS OF THE HEART.

ACCORDING to Dr. C. Oddo and Dr. C. Mattei,[1] of Marseilles, in descriptions of the effects of syphilis upon the heart, the tertiary manifestations alone have hitherto received much attention. They point out, however, that the increasing frequency of lesions supposed to have appeared in the tertiary stage suggests that the heart is more often affected in the secondary stage than has hitherto been realised. They report a fatal case of pericarditis in a man aged 54, who presented mucous tubercles of the lips and scrotum. The histological examination showed definitely that the lesions affected the pericardium and that the myocardium was not involved. The study of previous cases shows that secondary syphilis of the heart may assume different forms, some being mild and characterised by arrhythmia only, and others serious and fatal. The diagnosis is based on the history of the disease, the clinical course, the Wassermann reaction, and especially the effect of treatment. The prognosis should be as guarded as that of secondary syphilitic meningitis. Specific treatment, preferably by mercurial preparations, should precede the use of cardiac tonics. Salvarsan should be employed with caution, as it is very liable in such cases to give rise to cardiac collapse and pulmonary œdema.

NITROGEN IN WAR AND PEACE.

IN connexion with the scheme now on foot in this country for the manufacture of nitrates from the air at Billingham-on-Tees, involving the outlay of something like 5 millions of money by a powerful combine, the following note taken from the *Economic Review* (April 21st) on Chilean nitrates production is of interest:—

> *Chilean Nitrates Production.*
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> The Chilean nitrate fields cover approximately 90,000 hct.; their resources are estimated at over 100 mill. t. Only the fields to the north of Antofagasta are being worked.
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> The exploitation of the southern deposits was long hampered by the Government's refusal to build railways to that district, the object being to prevent over-production. The nitrate is obtained in surface workings; iodine is extracted as a by-product. During the war, production increased enormously. The export rose from 40 mill. quintals (46 kg.) in 1914, to 64·8 mill. in 1916; in 1917 it was still as much as 62·2 mill. Before the war the bulk of the export went to Germany. (*Korrespondenzbl.*, March 23rd.)

The Billingham-on-Tees site in county Durham was selected by the Government a year before the Armistice was declared with the view of increasing the output of nitro-explosives, and to some extent buildings, machinery, and plant were begun. The scheme, started for war purposes, will now, it is to be hoped, be developed for peace issues. It should be an important acquisition to British agriculture, and the promoters, we understand, are assured of the economy of the process and convinced of a large output of nitrate for fertilising purposes in the future. The fixation of nitrogen from the air on a large scale clearly means great national advantages, whether it be an answer to war or peace calls. We pray for the latter. In either case it is desirable to be independent of Chilean supplies.

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[1] See THE LANCET, 1919, ii., 1173.

[1] Bulletin de l'Académie de Médecine, March 30th, 1920.

LEPROSY IN INDIA.

Sir William Vincent has introduced into the Imperial Legislative Council a Bill to amend the Indian Lepers Act, which follows, as far as possible, the recommendations of the Conference on the leper problem held in Calcutta in February under the auspices of the Mission to Lepers. That Conference, the most important gathering of the kind held in India, had before it recent information regarding the treatment of lepers, both from the public health and the medical points of view. The findings of the Conference were clear and far-reaching. Proof having been given that leprosy is communicable in a variety of ways, the only way to rid a country of the disease is to isolate and to keep under supervision and control all persons afflicted with it. This has been done in Sweden, Norway, Iceland, and Germany with the most satisfactory results—namely, the practical stamping out of the disease. In the Philippines, which were quoted frequently at the Conference as an example which India should follow, there has been within the last few years a reduction of leprosy to an extent which suggests that in a few years it may disappear altogether from those islands, and in the Hawaiian Islands a similar state of things prevails. To secure such results, however, the complete isolation of all leprous persons has to be insisted on. In the asylums or settlements to which all such persons are relegated the utmost care is needed to keep the sexes apart and, as far as possible, to discourage the marriage of persons afflicted with leprosy, inasmuch as the fecundity of lepers, especially of females, is far in excess of the normal. Where it is impossible to secure this isolation the spread of the disease may be checked by removing from lepers all children as soon as possible after birth, because while the disease is communicable it is not necessarily hereditary—the children of lepers are not born lepers, nor need they become lepers if the precaution of removing them from leprous surroundings is taken early.

Unfortunately, in India it is not possible, for various reasons, financial among others, to act completely upon these findings: the compulsory segregation of all lepers is not possible, so the Act will confine itself to pauper lepers—namely, those who are found begging in the streets and actively endangering the health of the general public. The definition of leper received close attention from the Conference, and has been amended to include all leprous persons, and not only those suffering from ulcers, sores, or other cutaneous lesions, since the discovery was made that the disease is communicable at all stages in a variety of ways, but particularly by mucous nasal discharges. These steps having been taken, it follows naturally that there will be a great increase of lepers under detention, and provision will have to be made for their housing and treatment in properly equipped asylums, hospitals, and dispensaries. There are Government asylums in most of the provinces, and while nothing but good can be said about these institutions, the best results hitherto secured in the treatment of lepers have been in the institutions conducted by Christian missions. Here is clearly indicated an agency with which the Government may coöperate for this purpose. It is fortunate, too, that in the matter of the medical treatment of leprosy, India, thanks to the efforts of Sir Leonard Rogers and others working in the same field of research, has little to learn. The discoveries that have been made have been put into use in most of the asylums and hospitals with good results. But all existing institutions will be seriously crowded when pauper lepers are cleared off the streets, and steps will have to be taken to provide a staff of medical men with special training in the diagnosis and treatment of leprosy.

MEDICAL REVANCHE.

THE principle of individualism, of which we are reminded by the centenary this week of Herbert Spencer's birth, has little application at the present time. Our Paris correspondent writes that the medical profession in France is becoming restive under the constant discomfort, inconvenience, and hindrance in its work caused by strikes, especially by those involving transport. A spirit of resentment is arising in medical circles against the members of trade-unions, who do not hesitate to sacrifice to their own special interests those of the rest of the community, while at the same time counting on the unfailing supply of medical services. A number of medical societies have suggested an eight-hour working day for medical men, with increased fees for over-time. At a recent congress held at Quimper, the associated medical men of the department of Sud-Finistère decided to refuse to attend patients, rich or poor, in private or in hospital, to-day, May 1st, when the supply of practically all other commodities ceases. They added a rider to the effect that humanitarian considerations are no more binding upon doctors than upon those who hold up trains supplying milk to babes and sick persons. Our correspondent does not say why his colleagues, who are determined on drastic action, should not confine their reprisals in the first instance to the strikers and their family circles. The hardship to patients involved in granting an eight-hour day to the sister profession of nursing has already been felt in Paris, as our correspondent himself testified a fortnight ago.

MEDICAL INSPECTION OF HIGHER-GRADE SCHOOLS.

MUCH good should come of the issue by the Board of Education of Statutory Rules extending medical inspection and treatment to pupils in secondary and continuation schools throughout the country. These rules affect all the children in schools provided by the educational authority, including the pupil-teacher centres and the preparatory classes recognised by the Board for the training of teachers, the junior technical schools and day classes. Any other school or educational institute, whether aided by the local authority or not, may take advantage of the scheme and ask the authority to provide medical inspection and to make arrangements for attending to the health and physical condition of pupils. Educational authorities are requested to consider how far they can avail themselves of the services of private medical practitioners, and a warning is added against the establishment of a special service for domiciliary treatment. Provision must be made for medical inspection of pupils during their first term after admission, and then every succeeding 12 months. Where authorities are starting the work and time is limited, the Board suggests that preference be given to children just admitted or on the point of leaving. In London, where these children have been systematically examined for many years past, no difficulty has been experienced in getting defects treated and preventive action taken, and valuable information will result when the machinery is got going throughout the country. The Board of Education meets half of the yearly expenditure incurred.

BIOLOGICAL CONTROL OF DRUGS.

IN order to secure effective control of certain therapeutic substances, the Minister of Health has appointed a committee to consider and advise upon the legislative and administrative measures to be taken. The committee appointed consists of the following members:—

Sir Mackenzie D. Chalmers, K.C.B., C.S.I. (chairman).

H. H. Dale, C.B.E., M.D., F.R.S., head of department of biochemistry and pharmacology under Medical Research Council.

G. F. McCleary, M.D., medical officer, Ministry of Health.

A. B. Maclachlan, assistant secretary, Ministry of Health.

C. J. Martin, C.M.G., D.Sc., F.R.C.P., F.R.S., director, Lister Institute of Preventive Medicine.

The secretary of the committee is Dr. E. W. Adams, O.B.E., of the Ministry of Health, Whitehall, S.W. 1.

The quality and authenticity of a number of important remedial substances offered for sale to the public cannot be tested adequately by direct chemical means. It is possible, for instance, by the technique of an ordinary chemical laboratory to state that a sample of iodide of potash or of double cyanide of mercury is free from impurity and may be safely administered with the expectation of certain well-known therapeutic effects. The same cannot be said of many of the modern synthetic remedies, and this was so notoriously the case with arsenobenzol in its various modifications and aliases that administrative action was found necessary at the beginning of the war to protect both patients and administrators. Many of the alkaloids and hormones and all the vaccines and immune serums are in much the same position, and the time has now come to ensure the same protection against fraud and error in the case of complicated remedies that we already enjoy in the case of the simpler ones.

A MEDICAL SURVEY AT MIDDLE AGE.

THE annual report for 1918 of the county medical officer of health for the Soke of Peterborough compensates for its late appearance by containing suggestions of a piquant character. The author, in discussing the uniform decline in infant mortality throughout his area, states frankly that it is evident everywhere and "is as marked in areas where no ad hoc measures are taken as in those where thousands of pounds of the ratepayers' money are annually spent." He is evidently distrustful of the results of recent developments in the supervision of the infant and of the school child, for he adds that the nation has "to spend enormous sums on infant welfare, with results that, owing to our ignorance of the laws of heredity and prenatal hygiene, are, to say the least of them, unconvincing." His remedy is the compulsory examination and treatment of persons in early middle age—at or about the age of 40—when the commencing signs of disease which carry off a large number of individuals over 45 are easily detected, and still capable of treatment with comparative ease. There is evidently a little wavering in the author's mind as to whether this measure is all-sufficient or whether it needs special advocacy; for the Ministry of Health is at first blamed for not concentrating on this period of danger, while later caution again raises its head and proclaims that "medical examination and treatment should be provided for all at all ages instead of confining it to the most healthy period of life." Nevertheless, there is much sound sense in the suggestion of a medical stock-taking half-way through what we all hope may be our span of life. How much misery and ill-health might be avoided if a man could be advised in time that his arteries were ageing too rapidly, and that such and such measures should be adopted to maintain a sound body; how much early malignant disease in women might be caught in time and cured; how valuable would be advice and warning as to dietetic indiscretions now no longer trivial in their effects! As to the abstract value of such examination there can be no two opinions. But, having taken the horse to water, can you make him drink? Having, let it be supposed, provided the machinery for his examination at this mature age, will the average man of mature habits subject himself to its beneficent inquisition? In Germany, perhaps; but in this country we can say, with tolerable confidence, No.

THE Graduation Dinner of the University of London will be held at the Guildhall on Wednesday May 19th.

THE Scottish Secretary has appointed Dr. Norman Walker as Inspector of Anatomy for Scotland, a post which he has held in a provisional capacity during the last two years.

Sir Arthur and Lady Newsholme were passengers on the s.s. *Carmania*, which arrived in Plymouth on April 23rd from New York. Sir Arthur Newsholme has in the press a volume of American addresses on "Public Health and Insurance," which is being published by the Johns Hopkins University Press.

WE expect that Sir William Orpen's presentation portrait of the learned and veteran professor of medicine at the University of Cambridge may prove one of the principal pictures at the exhibition of the Royal Academy of Arts to be opened next week. The portrait of Sir Clifford Allbutt, it will be remembered, is the result of a subscription among medical men, and is to be given to Sir Clifford Allbutt alike to mark the general esteem and admiration of his colleagues, and to celebrate his long tenure of the position throughout the war of the Presidency of the British Medical Association. All those who have seen the portrait have admired it both as a likeness and as a dignified and decorative representation of a great man.

THE MEDICAL EXAMINATION OF THE CIVILIAN AERONAUT.[1]

AN explanation of the methods and standards now in use in this country for the examination of applicants for licences as civilian airmen was published, at the end of last week, under the authority of the Air Council. The Dominions and Colonies, who are now about to put into practice the principles laid down in the International Air Convention, have been especially in the eye of the Air Council in issuing a valuable brochure, but all the medical profession, and, indeed, the public, will benefit by learning the careful procedure whereby the intending aeronaut is selected for his dangerous and responsible career.

The pamphlet begins by reference to the

International Medical Requirements for Air Navigation.

An extract from the Convention relating to International Air Navigation, 1919, is quoted, setting out that the requirements are that pilots and navigators engaged in public transport shall be 19 years of age, of good family and personal history, free from mental, moral, or physical defect or hereditary nervous instability, and able to reach the standards required at a general medical and surgical examination and also at examinations into special sense acuity. The International Convention sets out that—

> (1) Every candidate before obtaining a licence as a pilot, navigator, or engineer of aircraft engaged in public transport shall present himself for examination by specially qualified medical men appointed by, or acting under, the authority of the contracting State.
>
> (2) Medical supervision, both for the selection and the maintenance of efficiency, shall be based upon certain requirements of mental and physical fitness. The aeronaut must neither suffer from any wound, injury, or operation, nor possess any abnormality, congenital or otherwise, which will interfere with the efficient and safe handling of aircraft. Nor may he suffer from any disease or disability which renders him liable suddenly to become incompetent in the management of aircraft. He must, therefore, possess heart, lungs, kidneys and nervous system capable of withstanding the effects of altitudes and also the effects of prolonged flight. Further, the aeronaut must possess a degree of visual and auditory acuity compatible with the efficient performance of his duties, and also possess free nasal air entry on either side.

The Convention, further, has provided that for the present each contracting State shall fix its own method of examination until the authorised medical representatives of an International Commission for air navigation shall decide on tests and standards. In order to ensure the maintenance of efficiency the aeronaut is to be re-examined every six months and the findings attached to his original record. In case of illness or accident there is also a re-examination, and no aeronaut may resume duty before being pronounced fit. Moreover, the date and result of each re-examination is recorded on the certificate. Lastly, the Convention provides that each contracting State may raise the standards as they like, but cannot lower them.

The British Methods of Examination.

The pamphlet describes the British methods for the examination of flying men in compliance with international medical requirements. The American Air Service has issued a full and profusely illustrated manual of the national procedure, and it is none too soon that the same is now done in this country. The physical and temperamental suitability of candidates for aviation engaged during the war the earnest attention of British doctors and physiologists, as in France, Italy, the United States, and Germany, and the desire of the Royal Air Force is to issue some pattern of general guidance for the future, having regard to the lessons of the past.

The pamphlet then sets out in paragraph form certain instructions taken verbatim from those issued to the medical officers of the Royal Air Force for the examination of aviation candidates. The special flying tests, which for a long time were carried out separately, fall for examination under the heading of the different systems to which they apply. The mental tests are not included, not because they are considered useless, but rather, it would seem, because it is better to leave their character to the discretion of the examiner; and the same may be said of special reaction time tests or muscle tone tests, which have not been adopted in this country to any large extent because further investigation is needed.

The methods of examination are then carefully described under the headings of family and personal history, age, general surgical examination, general medical examination, and special examinations of the eye, ear and vestibular apparatus, nose, and throat. Under the head of personal history, the following conditions are considered to require special mention:—

> *Head.*—A history of fracture of the skull should definitely disqualify for air work.
>
> *Neck.*—Scars, the result of removal of glands, should not be held as a cause for rejection, but the time which has elapsed since operation, the question of recurrence and signs of tubercle elsewhere, are all points needing attention and examination.
>
> *Chest.*—In cases of perforating wounds of the lungs, any signs of permanent injury to the lung tissue, while not necessarily constituting a cause for rejection, will indicate the need for special care with the tests for respiratory efficiency. A history of empyema, with resection of rib, calls for careful consideration of the cause of the condition and its effect on the lung expansion.
>
> *Extremities.*—Applicants suffering from the conditions mentioned below should not be accepted. (1) Amputation of thumb at carpo-metacarpal joint, (2) amputation of first and second fingers, (3) amputation of hand or arm, (4) injuries or operations leaving marked limitation of movement, (5) amputation of the leg above the knee, (6) operations on the knee joints, which have resulted in such limitations of movement at the joint as to interfere with the proper control of the machine.
>
> *Note.*—Amputations below the knee are not necessarily disabling, provided the movement at the knee joint is free; each case should be considered on its merits.
>
> In addition to the above, injuries which involve the trunks of the larger nerves, resulting in paresis, or which leave scars causing pain or cramp, are sufficient cause for rejection.
>
> *Abdominal operations.*—The fact of an abdominal operation having been performed should not, in itself, disqualify an applicant or airman, provided that no hernial protrusion or marked weakness of the abdominal wall has resulted.
>
> *A history of tuberculous disease* of joints or bones, recent or remote, should disqualify.
>
> *A dislocated semilunar cartilage* may prove a permanent disability, even after so-called successful operative treatment.

In respect of habits, the consensus of opinion is in favour of the strictest moderation in tobacco and alcohol among flying men. Any subject with a tendency to cardio-vascular or nervous instability should therefore be strongly advised in this direction, but gradual renunciation is probably more expedient in most cases than sudden and total abstention. The following is the text of the pamphlet:—

> *Smoking.*—It is recommended that careful record should be made as to whether "non-smoker" or "smoker," and if the latter whether pipes or cigarettes, or both, and whether moderate or excessive. The simplest method is to make a note such as C 10 or P 3—i.e., ten cigarettes or three pipes per day.
>
> *Alcohol.*—Questions under this head should elicit whether teetotaller or "takes alcohol." If the latter the form, e.g., spirits, wines, beer, or cocktails, and the records should give some idea of the average daily quantity.
>
> *Venereal disease.*—Any applicant or airman with a history of syphilitic disease should be deferred, and referred to an expert for an opinion before granting or renewing a licence.
>
> *Sleep.*—Enquiry should be made as to hours of sleep, the occurrence of dreams, nightmares, &c. If sleep is poor questions should be put as to the difficulty of getting to sleep, and the records should show the number of hours slept.

Athletic proficiency and familiarity with unsedentary pursuits will gain marks, as, of course, will a history of previous flying work. The minimum age of 19, as ordained by the International Convention is adopted, but no maximum age is suggested.

We need not put out the details of the general surgical examination and general medical examination, because all those who have to conduct the examination are certain to be familiar with them, but it is interesting to see how valuable the methods of body measurement advocated by Professor G. Dreyer in our columns[2] have proved themselves. It is considered that these methods provide an accurate means of estimating physical proportions, and should be applied practically at each examination and re-examination.

The Examination of the Respiratory System.

The examination methods for discovering the conditions of the respiratory system of aviators may be quoted verbatim:—

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[1] The Medical Examination of Civilian Pilots, Navigators, and Engineers. London: His Majesty's Stationery Office. 1920. To be purchased through any Bookseller or directly from H.M. Stationery Office. 6d. net.

[2] THE LANCET, August 9th, 1919, p. 227.

(i.) *Condition of lungs.*—Evidence of chronic bronchitis, emphysema, or tuberculous lesions (quiescent or active) should absolutely disqualify an applicant. An applicant should not be accepted as a pilot if the chest expansion as a whole is bad, especially if the deficiency is due to malformation of the chest wall.

(ii.) *Breath holding.*—(Apparatus required: stopwatch and nose-clip.) The subject is asked to expire as deeply as possible (preferably audibly) and then to fill the lungs fully (but not to absolute distension), and to hold the breath with the nose clipped or held. The reason for the audible expiration is that it has been observed that some subjects suffering from stress have lost the power of expiring fully, and a marked shortening of time taken to expire as fully as possible may afford an indication of such loss of power. The time during which the breath is held is noted, and the subject is then asked the reason for giving up. This should be recorded. The significance of the test and the time that is expected must not be communicated, and on no account may any examinee time himself.

Reason for ceasing.—Normally an answer such as "I had to give up," "I felt I should burst," "I wanted to breathe" is given. Subjects suffering from marked disability at altitudes almost invariably return an abnormal answer, e.g., "I became giddy or dizzy," "Things went blurred," "The blood rushed to my temples," "I began to feel squeamish." Where the answer is deemed not to be normal the subject's own words should be given.

The average time the breath is held by the normal fit pilot is 69 seconds, the minimum time being 45 seconds. Generally speaking, a man who does not hold his breath 45 seconds should not be admitted as a pilot. As a matter of experience it will be found that very nearly all such cases will be rejected on medical grounds, apart from this test. The test is believed to afford indication of: (*a*) The stability of the respiratory centre, and indirectly of the nervous system generally. (*b*) The likelihood (when the time is short and an abnormal answer is given) of the subject suffering from oxygen-want at altitudes. (*c*) Resolution to "carry on" under conditions of stress.

(iii.) *Expiratory force.*—(Apparatus required: Mercury U tube.) The applicant or airman is asked to hold his cheeks with the thumb and forefinger of the left hand, and steadily to blow the mercury column of the standard U tube up as high as possible with the scale turned away. Several mouth-pieces should be kept in disinfectant and carefully cleaned for each subject. On no account must the applicant or airman be allowed to swing the mercury up violently, and in all cases the height of any initial swing is to be disregarded. The reason for holding the cheeks is that it has been found that in some cases the mercury may be forced up to abnormal heights by the action of the cheek muscles. The number of mm. Hg blown is recorded. The examinee is then asked to repeat the performance while looking at the column. The resolute subject may, under these conditions, considerably pass the effort which he did not see, in this way affording some indication of his mental make-up. On the other hand, a subject who is not trying may give very discrepant readings. With the manometer again turned away, he may, by encouragement, be made to surpass his previous efforts. But attempts made whilst looking at the manometer scale, will, if he is not really trying, fail to surpass previous efforts which he has seen.

The average for normal individuals is about 105 mm. Hg. When under 80 mm. Hg it suggests that the subject will probably be incapable of sustained effort in routine aerial work and should probably be rejected. The test, however, should be taken in conjunction with the results of the rest of the examination.

(iv.) *Fatigue test and pulse response.*—(Apparatus is given.) This test is performed as follows. The applicant is asked to empty the lungs, fill up, blow the mercury in the U tube to the height of 40 mm. and hold it there without breathing for as long as possible, the nose being clipped. The average time in the large number of cases tested is 50 seconds: below 40 seconds is unsatisfactory. An essential adjunct to this test is the behaviour of the pulse, which is counted every five seconds during the time that the mercury is sustained. Starting at the fifth second in the normal individual there is generally a steady slow rise in the rate of the pulse, or a fairly marked rise, which is sustained most of the time. For example, the pulse-rate may rise gradually from 72 to 96 or 108, according to the time the breath is held, or the pulse may rise almost at once from 72 to 96 or 108, and may be sustained there. A large rise in rate—e.g., from 72 to 132 or 144—is unsatisfactory. In cases of stress a characteristic response is for the pulse to jump up to a quick rate during the fifth to the tenth or fifteenth seconds, and then to fall away in rate to normal or even below normal.

Such a response is as follows: Normal at start, 84; 5th-10th second, 144—sometimes almost impalpable; falling away (say 20-25 seconds) to 72 or even 60. Such cardiometer instability is an adverse factor in aerial work and is an indication for rejection. Other points in the examination should, however, be taken into consideration. The test is to be recorded by first noting the number of seconds during which the mercury column is sustained, and then writing down the pulse-rate of 5 second intervals, e.g., 50—P.6677789888, the time taken to blow the mercury to 40 mm. being ignored.

This test affords information as to the stability of the medullary centres and of the power of resistance to fatigue.

(v.) *Flack's bag test and Dreyer's nitrogen test.*—Although these tests have proved themselves of great value detailed descriptions are not included here, partly because the time taken to apply them properly is considerable, and partly because they really require to be worked by trained physiologists. In the case of the Dreyer test, the apparatus is expensive and, at present, difficult to obtain. Should information be required as to the method of their use and results obtained, reference should be made to the publications of the Air Medical Investigations Subcommittee of the Medical Research Committee, Nos. 1, 2, and 5.

(*To be continued.*)

CHICAGO HEALTH REPORT.[*]

CHICAGO, which only had one white settler in 1804, and a population of 7,580 in 1843, is now a city of 2,596,681 souls, covering an area of 190 square miles, and increasing at the rate of 50,000 a year. Fifty-one per cent. of the population consists of males, and 97·9 per cent. are white men. As regards race, 62 per cent. were born in the United States, 14 per cent. in Germany and Austria, 6 per cent. in Russia, and 3 per cent. in Ireland. In 1918 the death-rate was 17·17 and the birth-rate 24·5 per 1000. But the latter figure is only a rough estimate, for birth registration has only been recently established, and in 1914 the reported births were 13,000 below the estimated. Accordingly, infantile death-rates are given in terms of total deaths, not of births. In 1918 14 per cent. of total deaths were under 1 year of age, which is 98 per 1000 of estimated births. The general death-rate, owing to the influenza epidemic, was the highest recorded since 1895, but infantile mortality was much less affected by the epidemic than the general mortality.

Functions of the Commissioner of Health.

The office of Commissioner of Health differs materially from that of the English medical officer of heath. The commissioner is the administrative head of the Department of Health, and is charged with the enforcement of all laws of the State, ordinances of the city of Chicago, and all rules and regulations of the Department of Health relating to the sanitary condition of the city. Infectious hospitals, public baths, laundries, and other health institutions are under him, and he is authorised to publish information concerning his work, the health of the community, and methods of preventing diseases. He thus combines, as regards public health, the functions of health committee, town clerk, and Asylums Board, with those of medical officer of health, and exercises more arbitrary power than any of these. He is responsible only to the mayor. Under him are an Assistant Commissioner and seven distinct bureaux, dealing respectively with (1) general administration, education, and publicity; (2) municipal laboratory; (3) medical inspection, including infectious disease, school hygiene, infant welfare, and day nurseries; (4) food inspection, with licensing of milk and food dealers; (5) birth and death registration and vital statistics; (6) sanitation, plumbing, housing, new buildings, public baths, and comfort stations; (7) isolation hospitals and ambulance service. Each bureau is under a bureau chief directly responsible to the Commissioner of Health. In addition to these bureaux which are directly under him, the Commissioner is the president or director of six correlated health agencies which work in coöperation with his department—viz., the Public Health Association, the Commission of Ventilation, the Tuberculosis Sanitarium, the Morals Commission, Board of Examiners of Plumbers, and Chicago School of Sanitary Instruction.

The Bureau of Vital Statistics controls funerals, undertakers, and cemeteries, and apparently depends more on this control than on the certificates of physicians for the reports of deaths. At any rate, statistics of deaths are said to have been complete since 1871.

For the control of infectious diseases the city is divided into 55 districts, with a health officer over each. He is required to inspect and quarantine all reported cases of diphtheria, scarlet fever, measles, mumps, and other infectious diseases. Cases of smallpox, typhoid fever, and infantile paralysis are at once removed to hospital and contacts kept under observation.

School Hygiene and Infant Welfare.

School hygiene and infant welfare are not separated as in this country, but are both under an assistant bureau chief, who supervises the medical inspection of school children, open-air schools, and "open-window rooms" at schools, the "field nursing service," the school dental service, and infant welfare service. There are 143 health officers, and about the same number of nurses, for the school work, or about one of each to every four schools. These school nurses during the two months' (July and August) school vacation help the Health Department nurses in health visiting. The work of the latter nurses appears to be similar to that of our health visitors. Each one has about a hundred infants under her care. The infants referred to her are those living in crowded districts, whose addresses are picked out from birth returns, and also bottle-fed infants and those confined by midwives. An average of 15 visits and re-visits is made in a day. There are four municipal infant consultation centres, and 22 under the Infant Welfare Society, but, says Dr. Robertson, 50 are needed. The object of both field and centre work is to keep well children well. Sick babies are only cared for in emergencies.

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[*] Report and Hand-book of the Department of Health of the City of Chicago for the years 1911 to 1918 inclusive. By John Dill Robertson, M.D., Commissioner of Health. House of Severinghaus, 2141-49, Ogden Avenue. 1919. Pp. 1535. $5.

The Bureau of Food Inspection employs 77 food inspectors. All milk, cream, and ice cream sold in the city must be either "inspected" or "pasteurised." "Inspected" means complying with a fixed standard of purity, which is seldom reached, so that pasteurisation is the rule.

The Bureau of Sanitation deals with nuisances and insanitary conditions, and for this purpose employs 2 supervising and 35 sanitary inspectors. The bureau also exercises sanitary control over the construction and alteration of buildings, and all plans for habitable buildings must be submitted to it for approval *re* lighting, ventilation, plumbing, and draining. There are 4 ventilation and 17 plumbing inspectors, and plumbing work must be carried out by men who have been licensed by the plumbers' board of examiners.

Dr. Robertson's report deals in considerable detail with the work of all the different bureaux. It also contains four special reports on tuberculosis, venereal disease, the 1918 epidemic of influenza, and two outbreaks of acute anterior poliomyelitis (infantile paralysis) in 1916 and 1917. A foreword gives a general *résumé* of the most important problems of Chicago's health, and the report concludes with a historical chronicle and fairly complete index.

Water and Milk Problems

The health authority of Chicago, which now boasts of its being one of the healthiest cities of its class in the American continent, has had very great difficulties to contend with. The city was built on a plain slightly below the level of the lake of Michigan, and in order to make it possible to drain it by gravity the level of all buildings and streets had to be raised. This was done in 1855-6.

The problem of a pure water supply has not yet been satisfactorily solved. The water is drawn from Lake Michigan, which is continually fouled by the sewage of suburban towns, by bathers, and by careless steamboat officers. Five per cent. of non-treated water as supplied to houses would contain colon bacilli unless treated by chlorination; by carrying out the chlorine process "the colon content has been reduced to two-tenths of one per cent. in one cubic centimetre." The process is carried out at the street pumping stations, but the risk of the failure of an employee to fulfil his duty naturally causes anxiety to the Health Commissioner, and he recommends that the water should be not only treated with chlorine but also filtered. It is, indeed, curious that the rich and mighty city of Chicago should be no better off in the treatment of its water supply than an army in the field.

These observations recall the report of THE LANCET Special Sanitary Commission of Inquiry concerning the Water supply of Chicago, undertaken prior to the convention of a World's Fair, when thousands of visitors were expected to attend. The results were published in THE LANCET of April 8th, 1893. The pollution of the Chicago River was proved by numerous analyses made in THE LANCET Laboratory of samples of water obtained and forwarded to us by a responsible representative in the city. The water as supplied to the consumer hardly showed a clean bill, particularly in regard to suspended matter, and it is rather surprising to learn that after more than a quarter of a century has elapsed the problem of a pure water supply has not yet been satisfactorily solved. We suspect that one trouble at least arises out of the pollution caused by the drainage from the great stockyards of the city. This seemed to be the case with regard to the samples taken from the Chicago River, which served as a sewer, emptying directly into the lake. The work of analysis was under the control of Mr. (afterwards Sir) William Crookes, and later a series of articles appeared in our columns (the first of which was on Jan. 7th, 1905) from a Special Sanitary Commissioner of THE LANCET, who after visiting the St. Louis Exhibition took the opportunity while in the neighbouring State to investigate the Chicago stockyards and the condition of the abattoirs there. As his reports show, he was not favourably impressed with the sanitary regulations in force for the slaughter of the animals. His disclosures attracted considerable attention at the time and formed the text for a sensational novel.

Dr. Robertson appears to be satisfied with pasteurisation as the solution of the milk problem so long as this is efficient. By means of thorough inspection, rigid prosecution of offenders, and closing their establishments, he considers the attainment of efficient pasteurisation comparatively easy. Since "the practically perfect chlorination of its water and a complete pasteurisation of its milk we have not had a milk- or food-borne epidemic of any kind or description." The typhoid death-rate (0.01 in 1918) is the lowest in the large cities of the States.

Epidemic Diseases

Small-pox occasioned two deaths in 1917 and two in 1918. Vaccination is enforced through the schools, every child is examined once a year, and children found inefficiently vaccinated are referred to the family physician for vaccination or vaccinated by the school doctor. Small-pox had been absent for some years, but an outbreak occurred in 1917 and 1918, chiefly among coloured labourers imported from the South. Scarlet fever is a much more serious disease in Chicago than in London and caused more deaths in recent years than either measles or whooping-cough. Diphtheria is even more fatal, causing in 1917 and 1918 more than twice as many deaths as scarlet fever. The tuberculosis death-rate has fallen since 1907 from 1.7 to 1.4 per 1000, and the cancer death-rate, as on this side of the Atlantic, has risen persistently, and was 0.90 in 1918. The tuberculosis problem seems to be much the same in the States as in England, and is being met in Chicago in much the same way—by sanatoriums and open-air propaganda.

Tobacco and Opium Attacked

The health of a great city like Chicago continually presents new problems, and Dr. Robertson meets them undaunted as they arise. He has attacked nicotine by a successful request for the closing of "the dirty, filthy smoking compartments" on the railroads. He is now initiating a campaign against the abuse of opium, which he found was contained in 103,000 out of 400,000 prescriptions given in one month for influenza and pneumonia. President Wilson was asked that a stipulation should be made in the Peace Treaty for stopping the growth and importation of opium. Such an energetic reformer is bound to meet with opposition, and while congratulating Dr. Robertson on the fact that "a large majority of the aldermen have taken an active interest in the Department of Health," one would like to know more of the "very few instances in which 'they made improper requests of the Commissioner.'"

Conclusion

The report is illustrated by a large number of the pictorial health posters in which the American excels. The vital statistics, too, are mainly presented in the form of pictorial and block charts, which are a little embarrassing for those searching for exact figures. But it is impossible in a short notice to deal with all the noteworthy features of this valuable report. Those who wish for interesting information on placarding infected houses, detailed rules of quarantine, epidemics of influenza and infantile paralysis, a departmental "hearing board" for dealing with nuisance offences before prosecution, a system of promotion in the public health service by an elaborate scale of marks for ability, activity, reliability, &c., must be referred to the report itself, and we think they will not regret making fuller acquaintance with it. The total cost of the Chicago Department of Health in 1918 was $1,151,000, of which $430,000 were for the treatment and prevention of communicable diseases, and $240,000 for conservation of child-life.

Great Britain led the way in public health administration, but America has followed hard after us, and unless we imitate her courage in dealing with vested interests and in subordinating private privileges to public welfare, we shall soon have to take the second place.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Ireland and the Medical Research Council.

THE fact that, in the constitution of the new Medical Research Council, Ireland has been ignored is giving rise to comment in medical circles in this country. Ireland differs more in its social and health conditions from Great Britain than does Scotland from England, yet Scotland is, as is quite proper, represented on the Council. As each part of the kingdom contributes proportionately to the expenses of the Council, each should share in the advantages likely to accrue from its work. With the present constitution of the Council it is almost inevitable that problems of Irish importance will be overlooked. It is all the more important that there should be some one on the Council with special knowledge of Irish conditions in view of the fact that, whereas both England and Scotland have Ministries of Health which can press their interests, Ireland, although nominally possessing a Minister of Health, has as yet no Ministry. How actively the late Minister of Health for Ireland looked after her interests can be judged from his consenting to the constitution of the Research Council, without even, I understand, thinking it necessary to take the advice of the Irish Public Health Council, whose statutory duty it is to advise him in matters concerning the health of the country.

Pathology and Research in Belfast.

It is to be hoped that an arrangement may be made so as—following the example of Liverpool—to bring closer together the city of Belfast, in its public health aspects, and the University. This can be easily done by the latter supplying the Public Health Committee of the Belfast City Council with separate rooms in its pathological buildings, leaving the corporation to appoint its own officials, and making the professor of pathology and bacteriology the head and superintendent of the combined department. A joint meeting of the representatives of the Public Health Committee and of the University was held last week, and a deputation was appointed to place the above views before the City Council of Belfast.

Charter Dinner at the Royal College of Surgeons in Ireland.

On April 17th the President and Fellows of the Royal College of Surgeons in Ireland held their first Charter Day since 1914, the President, Mr. J. B. Story, in the chair. There was a large attendance of Fellows and guests, the latter including the Lord Chancellor of Ireland, the Provost of Trinity College, and Sir Archibald Geikie.

AT a meeting of the Torquay and District Anti-Vivisection Society, held recently, it was reported that little had been done during the past year owing largely to "lack of funds, interest, and enthusiasm, a kind of apathy having fallen on the branch since the war."

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

Yellow Fever in India.

THE Yellow Fever Committee appointed by the Government of India has arrived at unanimous conclusions regarding the measures which, in its opinion, should be adopted in order to keep the Peninsula free from infection by the disease. The stegomyia mosquito abounds in India, but it is easier to reduce the number of this species than it is to effect a reduction of the anopheles which transmits malaria, since the stegomyia generally breeds in and about houses, especially in vessels used for the storage of water. Lieutenant-Colonel S. P. James, who was deputed to the Government of India to report on the whole question of yellow fever prevention, urged that the provision of a constant high-pressure supply of water in the various sea-ports, which would render the storage of water unnecessary, should be the first step taken to reduce the stegomyia. In his opinion, if the policy of reducing stegomyia in the ports proved successful, it would ensure permanent safety against yellow fever. Other questions involved are the establishment of quarantine stations at the ports, and the securing of information from the countries in which yellow fever is endemic regarding the movement of the infection to the East. Colonel James held that the only satisfactory method of obtaining this information was to station permanently in the endemic area a medical officer who would be constantly in touch with the consular and quarantine officers of the United States and other countries. This officer in practice would be attached to the British Consulate at Panama, and it would be his duty to report promptly any new danger threatening the East. A second officer might be posted at Hong-Kong, and a third at Singapore. The American Government have for years followed the practice of attaching officers of their public health service to their consulates in the ports of foreign countries, and it has been apparently attended by very satisfactory results.

Small-pox Preventive Measures in Calcutta.

The health officer, Calcutta, in a note on the preventive measures to be used in the present epidemic in Calcutta, says the epidemics tend to occur every four or five years in the town. The present outbreak is as severe as the outbreak of 1915, if not worse. In 1915 there were 10,000 cases and 2500 deaths. If the present epidemic assumes similar proportions 50 to 100 contacts will have to be registered, for as only a small percentage of cases are treated in hospital, under the circumstances it will be well-nigh impossible to avoid exposure to infection. Accordingly a vigorous vaccination campaign has been started on a well-organised basis. Special arrangements are being made for the vaccination of University students and school children. The health officer refers to the provisions made for extra hospital accommodation and convalescent homes, and states that a large supply of medicated oil has been prepared and distributed free of charge.

Leprosy in Cochin.

The Cochin local government has decided to close the leper colony in Venduruthy Island, Malabar, established 300 years ago, and to transfer the inmates to Calicut Mission Leper Hospital.

The All-India Medical Conference.

The presidential address at the Third All-India Medical Conference was given by Dr. M. N. Ohdedar, who entered the profession from the Lahore Medical College in 1879. The dominant note of the address was struck from the beginning, when, in an allusion to the Committee on Reorganisation of the Medical Services in India, that body was called a "packed committee," on which the views of the provincial medical services and private practitioners were not represented, disappointment being expressed at the prospect of a continued preponderance of Indian Medical Service officers in civil medical appointments. It is well that British readers should understand the native views on a very difficult point, and they were stated fully in the address. While special credit is allowed to the I.M.S. officers for the ability with which they have conducted the Medical Colleges in the country, it is claimed that "a large number of Indians have so well profited by the training imparted by these professors, and by their natural aptitude and desire to rise high in the profession, that they are in no way inferior to the average general practitioners in any country, while some will compare favourably with the best general practitioners anywhere." Exception is taken to the suggestion that medical degrees and qualifications in India do not in all cases represent the result of a complete medical education, such statements being logically regarded as "a strange commentary on the capabilities of the Indian Medical Service professors, by whom the Colleges in India have been wholly manned in the past, and are, to a very large extent, in the present."

With regard to the large number of Indian medical men engaged as temporary commissioned officers during the war, the President considered it matter for regret that only a small percentage are likely to be made permanent in the department; so long as officers of the R.A.M.C. are drafted into civil employ he urges that "the Association should make a vigorous representation, remembering that the child that does not cry gets very little attention." This remark is very apposite, but it can be read in a way which its author did not intend. Dr. Ohdedar went on to say: "It cannot be denied that the Medical Department in India is the only department in which the interests of the officers clash with those of their assistants and of the alumni of the medical colleges generally in this country; and it is owing to this stumbling block that the claims of Indian medical men for responsible posts have not yet been freely recognised." The thing that is of greatest importance is the efficiency of the Medical Service—that is, the care of the sick and the preservation of the health of the whole population, civil and military. To ensure this a contented body of officers of all grades is necessary, and, of course, every effort should be made to bring this about. Dr. Ohdedar frankly recognises "that the very high appointments in the Medical Department should for years to come be reserved for the officers of the Indian Medical Service, be they European or Indian," and his opinion is that "a great number of the civil surgeoncies and a good number of appointments in the sanitary and chemical departments might be well given to qualified natural-born Indian subjects of His Majesty with advantage both to the country and the finances of the Government of India." But when he goes on to say that "it is only when a man is not able to earn even as much as a panel doctor earns in his own country that he, nolens volens, accepts service in a foreign country," and to comment unfavourably on the scientific ability of the I.M.S. officers, he is talking nonsense, and nonsense which spoils some of his own best arguments. With regard to the selection to professorial appointments, everyone will agree that the very best men available should be appointed, whether European or Indian; also that they should not be liable to frequent transfers, and that they should be well paid. Dr. Ohdedar considers that at least half the professorial appointments should go to qualified Indians, paid adequately, and debarred from general private practice. He refers to the important researches that have been carried out by many members of the Indian medical profession in various parts of the country, and to the laborious "spade-work" of the "licensed medical practitioners" and "sub-assistant surgeons," which designations, he considers, should be abolished. But he is critical now and again of his own countrymen, as when he regrets that "many men in Government service should not have the ambition to distinguish themselves in surgical work; and that through fear of losing the insufficient pay they get, they should allow the I.M.S. officers without any protest to monopolise the whole of the important surgical work."

In conclusion, Dr. Ohdedar advocates the formation of an association in India, on the same lines as the British Medical Association, including medical men of all classes, that would carry on continuous propaganda work in a constitutional manner, "move the authorities to listen to the grievances of the locally trained men, whether in the service or out of it, and minimise the baneful influence that the British Medical Association has in the shaping of the medical policy of the Government of India."

Home for Indian Children.

Recently the foundation-stone was laid of the home for children at Matunga, near Bombay, to be built by the Society for the Protection of Children in Western India at a cost of Rs. 2,72,000. The Bombay corporation recently voted an annual recurring grant of Rs. 2500 and a building grant of Rs. 15,000 towards this institution.

Retention of Rank in the I.M.S.

An Army Instruction announces that it has been decided that the rules regarding the retention of rank contained in Army Order No. 376 of 1918 shall apply in the case of officers of the Indian Medical Service (whether holding temporary or permanent commissions) who have served satisfactorily during the war. This retention of rank will take the place of honorary rank granted hitherto.

ADVERTISEMENTS IN THE MEDICAL PRESS.

AT a meeting of the Worcestershire County Council on April 24th the Chairman (Mr. Willis Bund) said that the Council would recollect that in connexion with the medical service scheme for the county they authorised advertisements for ten doctors at salaries of £450 each. They obtained two officers, and they then proposed to repeat the advertisement, but when they sent it to the *British Medical Journal* and *The Lancet* they received letters stating that advertisements could not be accepted which offered a less salary than £500 per annum for such posts. The chairman said that he also had a letter from the Ministry of Health stating that tuberculosis officers should have special qualifications and experience, and they doubted whether the salary offered (£450) would be sufficient. He said that he objected to this sort of pressure being put upon local authorities. (Hear, hear.) A matter like this was nearly more than they could bear. When they had got two gentlemen for £450, who, he thought, were very suitable for the posts, then they got these letters trying to prevent them getting any more. He did not quite know what to do in the matter. He felt very averse to allowing the medical press to dictate to them as to what salaries they should give. (Hear, hear.)

Dr. Dixey said that not only the Ministry of Health suggested that they would be unlikely to get officers of the calibre they desired at the salary they offered, but Dr. Fosbroke (the medical officer of health), in his report on the scheme, said that he was by no means certain that they would get thoroughly competent officers at £450. He hardly thought that the members of the Council would think that a salary of £500 was an extravagant sum, having regard to the cost of living, to be paid for a medical officer to do the amount of work that he had to do under the scheme. He would have to do the ordinary work of medical inspection of school children, and if they were going to get good results for the large amount of money they were going to spend on the scheme the officer must have some good knowledge and be a man who would be likely to do good work. The only alternative was to tell the Ministry of Health that they would not carry out the scheme. He proposed that the committee be authorised to advertise for eight assistant medical officers at a commencing salary of £500, rising to £600 per annum by annual instalments of £25; that the two medical officers appointed be placed on the same footing; and that the two senior assistants shall have special advisory functions, and shall receive a salary of £600 per annum, rising to £700 by annual instalments of £25. Dr. Dixey said that they had advertised for a dentist at a salary of £400. They had four applications. Three of them were not eligible, and one the committee thought would do and they agreed to appoint him, but he had sent a telegram that day stating that he declined the post. The speaker suggested that they should advertise for a dentist at a salary of £450. He hoped that the Council, who passed the full scheme and knew the necessity for it, would agree to the proposals. The net increase would be £650 a year, and half of that sum would be paid by the Board of Education, so that the total cost to the county would be £330.—Dr. F. W. J. Coaker seconded.

Mr. Millward said it was to him extraordinary that papers should take the position stated by the chairman. He was not satisfied that medical officers could not be obtained, and he moved that they advertise in other than the medical press—in some of the London daily papers.

The Vice-Chairman (Colonel Wheeler) seconded. He did not think that they should sit down under the treatment accorded to them by the medical press. He was not satisfied that they could not obtain the officers. After they had tried it would be time enough for them to consider whether they would give more or not. He could not help thinking that there were many young medical officers who would be glad to start at the figure of £450.

Dr. Dixey said that they advertised in the daily press at a crisis like that some years ago, and they got no answer.

Mr. H. C. Gardner: I do not think that is so.

The Chairman: I think we got some answers, though we did not appoint anyone.

Mr. G. E. Wilson said that this was not a new policy on the part of the medical press. The Council advertised in vain for medical officers for the asylum some years ago at a figure that was not considered a reasonable figure.

Mr. C. Dalley said that they would be unwise to play with this matter. They wanted medical men, and they would have to pay the price demanded. £500 a year for a trained medical man was not an extravagant sum.

Dr. L. C. S. Broughton asked the Council what sort of a medical man they hoped to get for £450 a year? There was a very serious shortage of doctors, which would be felt more in three or four years' time than to-day. The medical papers were simply standing out for a respectable salary for a highly trained medical officer. He was rather amused to hear Mr. Millward say that he thought that they could get doctors by advertising elsewhere than in the medical papers. He hoped that they would advertise and that they would get a doctor, and he hoped that they would be glad of him when they got him.

The amendment to advertise in the daily press was carried by 34 votes to 23.

URBAN VITAL STATISTICS.

(Week ended April 24th, 1920.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 18 million persons, the annual rate of mortality, which had declined from 18·7 to 15·8 in the four preceding weeks, further fell to 14·5 per 1000. In London, with a population of nearly 4½ million persons, the annual death-rate was 14·2, or 1·9 per 1000 below that recorded in the previous week, while among the remaining towns the rates ranged from 3·5 in Wimbledon, 5·0 in Ealing, and 7·1 in Wallasey, to 23·3 in Newport (Mon.), 24·4 in Blackburn, and 26·1 in Halifax. The principal epidemic diseases caused 354 deaths, which corresponded to an annual rate of 1·0 per 1000, and comprised 145 from measles, 85 from whooping-cough, 55 from infantile diarrhœa, 42 from diphtheria, 18 from scarlet fever, 7 from enteric fever, and 2 from small-pox. Measles caused a death-rate of 2·1 Stockport, 2·4 in Brighton, 2·9 in Rhondda, 4·2 in Wigan, and 4·8 in Newport (Mon.); scarlet fever of 1·1 in Stoke-on-Trent; and whooping-cough of 4·1 in Darlington. One death from small-pox belonged to Liverpool, while the second (a Norwegian seaman) occurred at the Metropolitan Asylums Board's Shelter in Bermondsey. The deaths from influenza, which had declined from 392 to 306 in the four preceding weeks, further fell to 259, and included 59 in London, 11 each in Birmingham and Liverpool, 10 in Sheffield, and 9 in Blackburn. There were 1965 cases of diphtheria, 1845 of scarlet fever, and 23 of small-pox under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 1958, 1904, and 24 respectively at the end of the previous week. The causes of 28 of the 4967 deaths in the 96 towns were uncertified, of which 5 were registered in Birmingham.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2⅓ million persons, the annual rate of mortality, which had been 17·2, 17·3, and 18·9 in the three preceding weeks, further rose to 19·2 per 1000. The 410 deaths in Glasgow corresponded to an annual rate of 19·2 per 1000, and included 31 from influenza, 20 from measles, 7 from infantile diarrhœa, 4 from whooping-cough, 3 each from small-pox and diphtheria, and 1 each from enteric fever and scarlet fever. The 94 deaths in Edinburgh were equal to a rate of 14·4 per 1000, and included 4 from influenza and 2 each from measles and diphtheria.

Irish Towns.—The 227 deaths in Dublin corresponded to an annual rate of 28·5, or 3·0 per 1000 below that recorded in the previous week, and included 9 each from measles and whooping-cough, 5 from influenza, and 2 from infantile diarrhœa. The 219 deaths in Belfast were equal to a rate of 27·6 per 1000, and included 13 from influenza, 5 from infantile diarrhœa, and 1 from measles.

Correspondence.

"Audi alteram partem."

THE RELATION OF GENERAL MEDICINE TO OPHTHALMOLOGY.

To the Editor of THE LANCET.

SIR,—The Ophthalmological Society is discussing this week the relation of diseases of the eye to certain general morbid conditions. I should like to recall the meeting of the Ophthalmological Section of the Royal Society of Medicine, held on Dec. 3rd last, when a discussion was introduced by Dr. Rayner D. Batten[1] on the relation of general medicine to ophthalmology. His suggestion, which received a certain amount of support, was that there should be ophthalmic physicians as well as ophthalmic surgeons. He pointed out what advantages there would be to the ophthalmic surgeon from such an arrangement.

I do not think it would help the ophthalmic surgeon in the least. So far as he is concerned there is no use for the ophthalmic physician; any coöperation between the two would be, as it always has been, of greater assistance to medicine than to ophthalmology. Some 30 years ago ophthalmologists began to have an inkling that defects of vision were responsible for general conditions of health, and, on the other hand, that general conditions had a considerable share in causing eye trouble; I do not think that physicians and general practitioners at that time were alive to the connexion.

One of the first conclusions arrived at by ophthalmologists was the rôle played by anomalies of refraction in the causation of headache, and in or about 1888 two papers were written on ocular headache, one by Mr. Brudenell Carter, the other by myself, and possibly some by other ophthalmologists. Mr. Carter said that many children in schools were dull and listless and complained of their heads, and there was difficulty in teaching them; they were thought to be stupid. Mr. Carter's comment was that "the stupidity was entirely on the part of the teachers."

In my own paper I reported some well-marked cases of eye headaches with remarks upon them. These cases are only examples of thousands which come under the treatment of the ophthalmic surgeon, and of which, till a comparatively short time ago, the rest of the medical profession had no knowledge; where, then, do the physicians come in? Physicians and general practitioners knew nothing of ocular headache until its existence was pointed out by the ophthalmic surgeons. I may say that when the profession did become alive to the fact that eye trouble was a common cause of headache (that was after the publication of papers calling attention to it in 1888), the number of cases of headache treated by ophthalmic surgeons increased very considerably. To prove this I give the number of cases that consulted me for headaches at different periods. Between October, 1887, and October, 1888, among 512 cases there were 28 who complained of headache. This was about the commencement of the period of enlightenment. Before this date, between July, 1885, and September, 1886, among 493 there were 10 cases of headache. This was before the ophthalmic surgeons knew much about ocular headaches. Later, between April, 1892, and May, 1893, among 506 cases there were 44. By this time eye trouble was under suspicion in cases of headache. Between June, 1900, and April, 1901, among 506 cases there were 75. The ocular cause of headache had become known not only in the profession but by the public generally. Had the profession only appreciated this cause 30 years ago what an enormous amount of inconvenience and even suffering might have been prevented.

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[1] THE LANCET, 1919, ii., 962.

There is another class of case of which a number, after having been treated by medical men for long periods, eventually seek the advice of an ophthalmic surgeon. These are cases of what may be called sore eyes. There may be slight conjunctivitis, lacrymation, redness and slight swelling of the edges of the lids, especially in the morning after sleep, and a sense of general discomfort. Lotions of all sorts have been used without any result. The ophthalmic surgeon almost invariably finds some slight error of refraction, generally a low degree of astigmatism. He orders suitable glasses and tells the patient to continue any one of the lotions he has already been using; recovery very soon takes place. There are quite a number of cases of Bright's disease which have never been discovered until the patient's sight has become affected and he consults an ophthalmic surgeon, either on his own account or by the advice of his medical attendant. The ophthalmic surgeon examines him with the ophthalmoscope and finds albuminuric retinitis, which means that the disease has been going on, perhaps for years, undetected and untreated; moreover, albuminuric retinitis is a late symptom and its occurrence is a sign that the patient is approaching his end. This is another instance of assistance given to medicine by ophthalmology.

Another class of cases in which the cause of eye trouble is often discovered when the patient consults an ophthalmic surgeon is a condition of general sepsis; the eye trouble need not necessarily be septic, though cases of septic inflammation of the eye do occur, but there is more often some interference with sight and want of power to use the eye without any very apparent cause. The ophthalmic surgeon finds weakness of accommodation and perhaps a slight error of refraction of which the patient was unaware whilst he was in good health; but having become weakened by septic infection from some self-contained cesspool he is troubled by what had previously been no inconvenience. A little inquiry will generally discover the cause, but whatever the cause may be it is the ophthalmologist who makes the discovery, not the practitioner of medicine, and he advises the patient to consult the dentist, nose and throat specialist, or general surgeon, with the result that the cesspool is drained or removed and the patient recovers. Other sources of infection allied to sepsis are gonorrhœal or syphilitic virus, which every medical man knows are the main causes of iritis and many other affections of the eye; but I do not think that the profession at large is aware that gonorrhœal infection is by far the most common cause of iritis, and responsible for all the most severe and troublesome cases. Nor do I think that general medicine will enlighten them on the subject. Iritis has from time to time been divided into many varieties, but I think (and fancy that a good many ophthalmologists are of the same opinion) that at least 95 per cent. of cases of iritis are gonorrhœal or syphilitic, and there are some mixtures of the two.

Many nerve cases in their early stages are discovered by ophthalmologists. The patients may have consulted a medical man only because they had noticed something wrong with their eyes, and may then have been advised to go to an ophthalmic surgeon. Here again ophthalmology comes to the aid of medicine. The ophthalmic surgeon discovers possibly something serious, such as double neuro-retinitis or wasting of the optic nerves. But not unfrequently it is something very slight of which little or no notice has been taken by the doctor, such as slight diplopia. It may mean nothing, but, on the other hand, it may be the first symptom of serious nerve trouble.

I could give many instances in which medicine has been helped by ophthalmology, but think I have said enough. There is no place for the ophthalmic physician, and what the ophthalmologist does not know of medicine as it concerns his specialty no one else is likely to teach him.

I am, Sirs, yours faithfully,
CHARLES HIGGENS, F.R.C.S.

Brook-street, W., April 5th, 1920.

AN UNUSUAL FOREIGN BODY IN THE EAR.

To the Editor of THE LANCET.

SIR,—On April 4th a constable came to me at the City of London Police Hospital complaining of deafness and occasional pain in his left ear. On examination I saw a black glistening plug which I took to be impacted cerumen; the right ear was clear. I directed him to put almond oil into the ear and come up for syringing in two or three days. He came on the 6th and a nurse syringed the ear without result. He saw me at midday and I again syringed the ear and, after some rather forceful syringing, the plug moved outwards and I was able to help it out with the nozzle of the syringe, when it proved to be a beetle. When I announced this result the constable informed me that about 18 months previously he was in France, and sleeping on the ground under canvas. He awoke one morning and felt a tickling sensation in his left ear. He pushed his finger in and felt some squashing of an insect and the thing seemed to crawl right in; some blood (presumably the beetle's) came out of his ear. He went to the medical orderly in agony, and he put something into the ear and told him he must have had a boil or something of the sort, and what he took to be an insect crawling must have been due to the blood trickling when it burst. The orderly syringed the ear twice; and on some later occasion he saw another orderly, who syringed it again, but he never saw a doctor till he came to me. After removal of the insect the ear was clear, and he said he could hear properly again, and beyond some local redness about the handle of the malleus I detected nothing abnormal.

The beetle was singularly well preserved, legs, antennæ, and case being complete. I took it to Professor A. Keith at the Royal College of Surgeons, and have received the following from him: "We had to send your beetle to the British Museum to be identified. His name is on annexed slip with the identification He is a native of France. His length is 19 mm. and he is 7 mm. wide. We are keen on keeping the beetle and showing it in our Foreign Body series." On the slip was: "*Carabus convexus*. Fab.—Carabidæ—predaceous beetles—feeding on insects, larvæ, &c., and on worms. *C. convexus* does not occur in Britain.—C. Gahan, Keeper of Entomology, B.M."

I am, Sir, yours faithfully,
A. P. GIBBONS, M.B. Lond., &c.,
April 26th, 1920. Surgeon to the City of London Police.

LICE AS A CAUSE OF RINGWORM.

To the Editor of THE LANCET.

SIR,—About the year 1909 I began to suspect some causal relationship between lice and ringworm of the head. At that time I was examining some hundreds of cases of ringworm per week, and the more I saw of the disease the more convinced I became that my suspicions were well founded. In the majority of the cases examined I found either lice or the eggs of lice present. In the minority of the cases, where the actual presence of lice or nits could not be demonstrated, it was generally admitted by the parents that their children had recently suffered from lice or nits. The number of cases where no such history could be obtained was so small as to be almost negligible.

The fact that ringworm is most common in the elementary schools, much less frequent in secondary schools, and of fairly rare occurrence amongst children in public or high schools in the country, is, I think, incontrovertible. Why, then, should the disease attack in this special order of frequency, and what causal factor is there which corresponds? The presence of lice and their eggs follow exactly the same distribution—that is, they are found rarely, and then only sporadically, amongst public and high school children, to some extent in the secondary schools, and quite commonly in the elementary schools. Considering the presence of two conditions identical in distribution, I proceeded to make cultures from the hairs infected by ringworm fungus, from lice found on ringworm heads, and from lice on heads which were not infected by ringworm. The results were such as to confirm my earlier suspicion, for from ringworm hair and lice from infected heads I grew ringworm (Sabouraud's media), but not from the lice of non-infected heads.

These experiments extended over a prolonged period of time and were considerable in number. From the results obtained I came to the conclusion that infected lice provide one means for the transference of ringworm from one child to another.

I do not suggest that the louse acts as a host in the usual acceptation of the term, or that there is any cycle of change, but I do suggest that the fungus is carried on the body or extremities of the louse, which is thus merely a direct carrier.

I do not wish to exclude direct infection from one child to another; this probably does occur, but in quite a small percentage of cases. Whilst I was making these researches the war broke out, and unfortunately my notes and data have been lost or destroyed. My object, however, in bringing the meagre facts to the notice of the profession is that others who have laboratories and the necessary time may carry these investigations further. My experience of school medical work suggests that the incidence of ringworm will lessen as the warfare on lice continues to be rigorously carried on.

I am, Sir, yours faithfully,
ALGERNON E. L. WEAR,
April 26th, 1920. School Medical Officer, Leeds.

THE DIAGNOSIS OF MALARIA.

To the Editor of THE LANCET.

SIR,—I should like to make a few remarks in connexion with Colonel Mathew D. O'Connell's letter on the Diagnosis of Malaria, which appeared in your issue of Feb. 28th. I regret that my absence from England has precluded me from writing this note earlier.

So far as the army in India is concerned, it is only after many years of continuous effort that we have established microscopical examination of the blood as a routine measure in all military hospitals in cases of pyrexia, both in cantonments and in the field. It is impossible to exaggerate the enormous advantage to the health of the troops that has resulted from this practice. The statistics given in the Reports of the Sanitary Commissioner with the Government of India indicate the extent to which malaria has undergone reduction in the army in India during the last 20 years, and this is due, at least partly, to the more accurate and definite diagnosis of malaria by microscopical examination of the blood.

From experience in the field as an administrative medical officer I know that carrying out blood examinations properly in all field ambulances and general hospitals is an exceedingly difficult undertaking, but every effort has to be made to see that it is done. The war has taught us much, and it is inconceivable that at the present day our Home or Indian Government would send an army into a malarious country without an efficient staff of medical officers and subordinates capable of carrying out blood examinations and the means of doing so. Blood examinations by the microscope are of special value in diagnosis in India, where we meet with several varieties of fever; during these examinations we at times unexpectedly come across parasites other than those of malaria. For example, in the recent Afghan campaign, in one Indian general hospital three cases of relapsing fever were so discovered, and in the epidemic of relapsing fever in Meerut in 1917 several cases diagnosed as malaria initially were found to be relapsing fever, and some years ago I remember Lieutenant-Colonel C. Dawes, I.M.S., showing me a case in Lansdowne which was thought to be malaria, but in which *Spirochæta carteri* was found in the blood. Dr. Philip Manson-Bahr refers to similar cases in his letter on the same subject in your issue of March 13th. In passing I would take the liberty of endorsing all that is stated by that talented writer in the letter referred to.

Our present methods of microscopical examination of the blood undoubtedly fail to diagnose malarial infection in a certain proportion of cases in which it is present, but I hold that this demonstrates the necessity of improving our methods rather than doing away with them. We are in India in possession of abundant evidence pointing to the necessity for more continuous examination of the blood for parasites in fevers of unknown origin in malarious stations and in the field. Let me quote one group of facts in support of this statement. In the Burma Division up to August, 1911, a large percentage of "fever" cases were returned as "pyrexia of uncertain origin," the practice being to rely upon a single examination of a stained blood smear for malarial parasites. From that month onwards daily microscopical examinations of the blood in all cases of undiagnosed pyrexia were carried out, quinine being withheld until parasites were found in the peripheral blood. Over 9000 slides were examined in connexion with 715 infections. In one case parasites were not found until the eighth day, in 2 on the seventh day, in 5 on the sixth day and 4 on the fifth day, in 11 on the fourth day and 43 on the third day, in 127 on the second day, the remainder on the first day; in other words, in a high percentage of proved malarial infections parasites were stated to be absent during the first paroxysms. In two Indian battalions quartered in Mandalay, which used to be a very malarious cantonment, six months after the adoption of this change the place of practically all the cases of fever of uncertain origin was taken by malaria in the returns. A similar series of facts was recorded in the 6th (Poona) Division in the last quarter of 1913, although these latter observations were not pushed to such a completely logical conclusion as those of the Burma Division.

The records of our military hospitals in India show that frequently malarial parasites are not found in the peripheral blood during malarial paroxysms. The chief reason given for the failure to find parasites is that the patients are at the time taking quinine either prophylactically or curatively. Personally, I consider that when malarial parasites are in sufficient numbers in the blood to give rise to malarial paroxysms they can in the vast majority of cases be found in the peripheral blood, especially if the thick-film method be employed and quinine be withheld temporarily.

The practice of giving quinine in cases where malarial parasites have been definitely shown by repeated microscopical examination of the blood to be absent is, I believe, therapeutically unsound. One great disadvantage of giving quinine in cases of doubtful fever is that after its use the diagnosis of the case may never be cleared up. When all evidence shows that there are no malarial parasites in the peripheral blood, abstaining from giving quinine can do no serious harm to the patient in the vast majority of cases. It may sometimes happen that the disuse of quinine in such cases for some days enables the diagnosis to be settled by parasites appearing in the surface blood. Although we know that quinine is a specific in a large proportion of cases of malarial infection, the fact that it brings about the disappearance of pyrexial phenomena does not prove that the fever is malarial. Quinine is an antipyretic apart from its plasmocidal properties. It is considered that as a routine practice no case of fever should get quinine until malarial parasites or other changes in the blood indicate that the case is one of malarial fever or that the clinical manifestations are definitely those of malarial paroxysms.

It has never come to my knowledge that abstaining from giving quinine in doubtful cases of fever while the diagnosis was being cleared up has been injurious to the patient. Nevertheless, we cannot alienate the responsibility of the officer who is treating the case, and he must decide for himself whether quinine is to be given in any particular doubtful case or not.

In the Burma Division in all cases of P.U.O. a blood examination for malarial parasites consisted of the following carried out on three consecutive days: (*a*) Examination of two stained smears; (*b*) examination of two fresh films; (*c*) examination of a stained thick film; (*d*) examination for pigmented leucocytes; (*e*) a large mononuclear count. The first two will usually be sufficient, and where negative for three consecutive days malarial infection might be eliminated. A positive result, of course, removes the necessity for further microscopical blood examinations as regards diagnosis. It was directed that quinine should be withheld, except in cases where the clinical manifestations were obviously of a malarial nature and serious in character.

It is admitted that the course adopted was rather a large undertaking and involved much antecedent preparation. Assistant surgeons and sub assistant surgeons were sent for courses of special malarial training, more microscopes were obtained, and one or more assistant surgeons or sub assistant surgeons in every hospital were taught to examine the blood systematically. The results were beyond all expectations. The P.U.O.'s, which previously ranged from 60 to 80 per cent of cases admitted with clinical manifestations of pyrexia, were reduced in two stations out of ten to nil, and in no station exceeded 10 per cent. These observations were closely watched and checked by myself and my D.A.D.M.S. (Sanitary), Lieutenant Colonel Tilbury Brown, D.S.O., R.A.M.C.

It is of the greatest importance to the individual patient to know whether he is or is not suffering from malarial infection. If he is he must take a curative course of quinine to eradicate the infection. Those of us who have been obliged to go through this regime know that it is no trifling undertaking, and it is downright cruelty to subject anyone to it unnecessarily—that is, without a positive diagnosis.

A valuable and important practical point has been brought out by Colonel O'Connell's letter that more scientific work should be done with the view to perfecting our means of finding malarial parasites in cases of malarial infection in which our present methods are insufficient. The thick film of Ronald Ross is a great help, but fails in a certain proportion of cases. One expected something in this direction to be developed from the Bass John method of centrifuging the blood in malaria, up to date, anyhow in India, it has been of scientific interest only, whilst it is quite impracticable in the field. I should be reluctant to believe that with so many highly trained experts in malaria in the British Empire some simple method could not be devised of tiding us over the difficulties connected with the small proportion of malarial cases in which at present the diagnosis cannot be definitely determined microscopically. I am, Sir, yours faithfully,

P. HEHIR,
Major General I.M.S. (ret.)

Salerno, Italy, April 10th 1920

AN ANGLO-AMERICAN LIBRARY FOR CENTRAL EUROPE.

To the Editor of THE LANCET.

SIR,—In your issue of April 17th, you published the gist of a document issued under the auspices of the British and American members of the Society of Friends, and having as trustees Professor Gilbert Murray, Mr. Arnold S. Rowntree, and the Rev. Canon William Temple, setting forth the need of intellectual workers and teachers in the universities of Central Europe for English and American books on philosophy, science, and literature. In order to meet this need the promoters of the scheme propose to establish "in Central Europe under British American auspices, one or more libraries of recent English books indispensable to university teachers." Such books at present cannot be obtained in Central Europe except at exorbitant prices, and, as a consequence, scholars in these countries find themselves cut off from access to books printed in English since 1914, which means that intellectual workers are deprived of indispensable tools. There is, we are reminded, "a hunger of the mind" as well as of the body.

At first sight it would seem more fitting that the British and American nations should devote their energies to healing the wounds and binding up the sores of their allies France and Belgium, for both these countries are in part or in whole blasted with war, and the damage to the great library of Louvain University caused by the apostles of Kultur is in great part irreparable. But on second thoughts it becomes plain that they that are whole do not need a physician, but they that are sick. France and Belgium are nations who have within themselves the essentials of civilisation and are in touch with the thoughts and ideals of both Western Europe and the United States, whereas the nations of Central Europe not alone before the war, but during its course, and even now that it is over showed and show themselves either ignorant of or oblivious to the ideals of civilised nations. If the provision of British and American books can drive into the hearts of German professors such elements of morals as that it is well for a country to keep its plighted word, that the wanton destruction of a library or of a great monument of human intellect such as the cathedrals of Malines or Rheims is a sin against the light, then we may hope that those whom they teach who are suffering from "a hunger of the mind and soul as well as of the body," will begin to realise the meaning of the words, "Blessed are they that hunger and thirst after righteousness for they shall be filled."

The promoters of the scheme say in their circular, "The reconciliation amongst the peoples can only come through the cultivation of mind and spirit, and it is clear that the great teachers of the world, by the free interchange of ideas, must be the leaders in such an endeavour." We may be allowed to doubt whether there are any great teachers of the world to day, great, that is, in the sense in which Newton, Pascal, Laplace, Kant, William Herschell, Faraday, Ludwig, and Osler were great, but it is to be hoped that the English and American Society of Friends, whose members have done such admirable work in restoring the waste places of France and Belgium, will be able to sow the seeds of the humanities and to illumine the dark places of Central European thought with the light of modern British and American thought. Books have ever, since they began to be written, been the delight of cultivated minds, and the great thinkers of the world have left on record the praise of books, the panegyric of Cicero, with which he astonished the courts in an action of contested citizenship, is still one of the great passages of literature, even as Mackail says, "the abiding motto and blason of literature itself." Such studies, says Cicero, "occupy our youth, divert our old age, embellish the times of our weal, offer refuge and consolation in time of woe, delight us at home and do not stand in our way in public life, pass with us the night watches, travel with us abroad, are with us in the country." Such is the praise of books, but many years before Cicero a greater mind still had seen that books are not everything. In his dialogue "Phædrus," Plato makes Socrates say that "only in principles of justice, and goodness, and nobility taught and communicated orally and written in the soul, which is the true way of writing, is there clearness and perfection, and seriousness." An old and famous paradox says, "Knowledge cannot be taught." It may be that the fire of war has begun to purge out the old megalomania from the Central European Empires, and that the provision of books will enable teachers of those countries to appreciate right thinking. Forgiveness of enemies is a Christian duty, but forgiveness connotes repentance on the part of the enemy, and at present there is little sign of this. Still, the experiment is worth trying.

I am, Sir, yours faithfully,
H. P. C.

April 23rd 1920

SMALL POX IN GLASGOW.—A mild outbreak of small pox has occurred in Glasgow during the last few weeks. The first cases were noted early in March, and to date there have been 28 admissions to hospital. A great majority of the patients are children. In view of the steady decrease of infantile vaccination, it is estimated that not more than half the children born are protected, as against a proportion of 84 per cent prior to the Vaccination Act, 1907. Special arrangements have therefore been made to provide and encourage vaccination among the unprotected, and the response has so far been satisfactory. In view of the prevalence of small pox the corporation have resolved that cases of chicken pox are to be notifiable from May 1st until July 31st.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surgeon Rear-Admiral A. G. Wildey is placed on the retired list.

F. R. McCambley is granted a commission as Surgeon-Lieutenant (D.).

ARMY MEDICAL SERVICE.

TERRITORIAL FORCE RESERVE.

Col. S. S. Hoyland, having attained the age limit, is retired, and retains his rank, with permission to wear the prescribed uniform.

ROYAL ARMY MEDICAL CORPS.

Lieut.-Col. J. H. Brunskill retires on retired pay.

Lieut.-Col. F. S. Penny relinquishes the temporary rank of Colonel.

The undermentioned relinquish the acting rank of Lieutenant-Colonel: Major L. A. A. Andrews; Major and Bt. Lieut.-Col. C. R. Sylvester-Bradley; Temp. Major W. H. G. Aspland; Temp. Capt. J. F. Robertson.

Major E. B. Lathbury, O.B.E., to be acting Lieutenant-Colonel.

The undermentioned relinquish the acting rank of Major: Capt. and Bt. Major W. F. Christie; Capts. R. S. Cumming, H. Bedingfield; Temp. Capts. A. E. Atkinson, M. Bates, A. Grant, F. R. Sturridge, H. G. Kilner, N. E. Kendall.

To be acting Majors: Capt. D. H. C. MacArthur; Temp. Capt. C. R. B. Von Braun.

Capt. A. L. Aymer resigns his commission and is granted the rank of Major.

Officers relinquishing their commissions:—Temporary Captains granted the rank of Major: A. Grant, J. A. Mackenzie (acting Major), W. C. Sharpe. Temporary Captains retaining the rank of Captain: F. G. Cross, K. R. C. Hallowes, F. E. Sprawson, J. S. Martin, W. L. Thomas, H. O'H. O'Neill, W. I. Adams, E. G. Grove, H. J. Knox, F. A. Ross, T. F. Lumb, E. Sakoschansky, E. Lewis, W. Bannatyne, W. Boyd.

SPECIAL RESERVE OF OFFICERS.

Capt. C. Lovell relinquishes the temporary rank of Major.

Captains relinquishing the acting rank of Major: G. H. Stevenson, J. A. Hill, J. A. Stewart.

Capt. C. A. McGuire relinquishes his commission and retains the rank of Captain.

TERRITORIAL FORCE.

Major (acting Lieut.-Col.) T. L. Fennell relinquishes the acting rank of Lieutenant-Colonel on ceasing to be specially employed.

Capt. J. B. Bate is seconded under para. 112 T.F. Regulations.

Capt. F. W. K. Tough to be Major.

Capt. (acting Major) W. T. Harkness relinquishes the acting rank of Major on ceasing to be specially employed.

1st Northern General Hospital: Major (acting Lieut.-Col.) D. W. Patterson relinquishes the acting rank of Lieutenant-Colonel on ceasing to be specially employed.

TERRITORIAL FORCE RESERVE.

Major W. Kirkpatrick, from 1st Southern General Hospital, to be Lieutenant-Colonel.

ROYAL AIR FORCE.

Medical Branch.—The undermentioned are transferred to the unemployed list: Capts. J. P. Hennessy, J. Ferguson, R. W. Pritchard, C. F. Eminson, H. L. H. Greer, W. Lumley, D. J. Cannon, M. Hyman; Lieut. R. H. Parry.

INDIA AND THE INDIAN MEDICAL SERVICES.

Lieut.-Col. Sarbadhicary has been elected a Fellow of the Calcutta University. Major R. E. Wright, Bacteriology Department, has been posted to Madras. Capt. P. J. Edmunds is appointed Physician, Wireless Branch, India Telegraphs. Lieut.-Col. G. T. Birdwood, civil surgeon, Lucknow, has been granted privilege leave combined with furlough on full average salary for the total of eight months. Lieut.-Col. L. G. Fischer, civil surgeon, Dehra Dun, has been granted privilege leave. Major J. T. Parkinson, officiating superintendent, Bareilly Central Jail, has one month's leave. Lieut.-Col. J. C. H. Leicester has been appointed permanently Professor of Midwifery, Medical College, Calcutta. Capt. E. S. Phipson has been confirmed as Health Officer, Simla.

THE Society of Apothecaries of London has subscribed £10 10*s*. to the Keats Memorial Fund. The poet was one of the earliest licentiates of the society; having been examined by the well-known Dr. Brunde, he qualified in 1816.

Obituary.

THOMAS JACKSON, B.A. LOND., M.R.C.S., J.P.,

CORONER FOR CROYDON.

THE death of Dr. Thomas Jackson, of Thornton Heath, will be felt by a wide circle. Born at Torrington, Devon, in 1846, he was educated at his father's private school and then at New College, Hampstead, to become a Congregational minister, taking his B.A. Lond. in 1867. Soon afterwards he decided for a medical career, studying at the Middlesex Hospital, from which in 1877 he qualified L.S.A. and L.R.C.P. Edin., and M.R.C.S. Eng. in the following year. After serving as resident obstetric officer at his hospital he settled in practice at Thornton Heath, and at once made his mark as a citizen. He was one of the first aldermen for the newly-formed county borough of Croydon, and sat on the first bench of borough magistrates. But it is as coroner that he will be best remembered. From 1889 when he was appointed, until the day of his death, on only a single occasion was the necessity of holding an inquest ordered by him called in question, and subsequent events then proved his judgment to be correct.

A colleague sums up his character thus: He was a man of varied interests, a great lover of gardening, a fine conversationalist, a keen politician, a scholar, full of humanity and kindliness, his outstanding characteristic being his sane outlook on life. The smile of the man was a benediction, but if that suave manner misled a witness at an inquest into thinking he had a soft proposition to deal with he soon discovered his error.

Of Dr. Jackson's other civic activities it may be mentioned that he was instrumental in securing Grange Park for his fellow citizens as a recreation ground, and in the establishment of the Polytechnic and the Free Library. He was the founder of the Croydon Ratepayers' Association, and an unfailing supporter of the Liberal party in a constituency which has never returned a Liberal Member to Parliament.

Medical News.

UNIVERSITY OF CAMBRIDGE.—The following candidates have satisfied the examiners in both parts of the Examination in Sanitary Science:—

Alured Charles Lowther O'Shea Bilderbeck, James Brown, William George Clark, Margharita Mary Lamont Couper, Henry Speldewinde de Boer, Eric Alfred Fiddian, Alexander Fraser, George Makinson Heydon, George Gordon Johnstone, *John Burman Lowe, Peter Alexander McCallum, Jessie Brown Maclachlan, Philip Sydney Marshall, William Percival Mulligan, Albert Rutherford Paterson, Dawson Cameron Robertson, John Bevil Grenville Skelton, Victor Farrar Soothill, and *Meredith Blake Robson Swann.

* Distinguished in the Application of Sanitary Science.

UNIVERSITY OF GLASGOW.—The following degrees were conferred on April 20th:—

Doctor of Medicine (M.D.).—Daisy Annabella Murdoch Clark (Mrs. Gale) (with commendation).

Doctor of Science (D.Sc.).—John William McNee and John Boyd Orr.

Bachelor of Medicine and Bachelor of Surgery (M.B., Ch.B.).—Alexander Mitchell Beaton, Alexander Kidd Begg, John William Stewart Blacklock (with honours), Richard Ryther Stancer Bowker, Archibald Donald Brown (with commendation), Annie Burns Cameron, John Parker Chisholm, George Michael Cooper, William Norman Duguid, Robert Fletcher, Thomas Fletcher, Robert Adam Forsyth, Robert Gold Howat (with commendation), Thomas Downie Hunter, George Jamieson, Chung Un Lee, Barnett Levine, Alexander M'Cheyne Macintosh, Peter Alexander Mackay (with commendation), William M'Kendrick, John M'Kean Maxton, John Spence Meighan, Marjorie Mitchell, Thomas Fraser Noble, Peter Crawford Rankin, Robert Scott Reid, Joseph Sachs, Marguerite Linck Sclanders, Cecilia Shiskin, Thomas Stewart Stirling, Alexander Strang, Herbert Arnold Summers, John Leonard Turpie, and John Dora Williamson

AT the meeting of the Medico-Psychological Association of Great Britain and Ireland, on May 20th, the First Maudsley Memorial Lecture will be delivered by Sir James Crichton-Browne, at 3.30 P.M., at the Royal Society of Medicine.

Ancoats Hospital, Manchester, is making an appeal to the public Of the £50,000 needed to build and equip a nurses' home and pay off an overdraft of £9000, so far £13,555 have been promised

CLEANSING OF SHELL FISH.—At the last meeting of the Exeter port sanitary authority it was reported that the Ministry of Health had promised to provide tanks for the cleansing of shell fish in the Exe estuary

THE 48TH GENERAL HOSPITAL, SALONIKA—The opening of this hospital is to be commemorated by the holding of a dinner in London on June 24th Officers who have been connected with the unit are asked to communicate with Dr B Holroyd Slater, St Luke's Hospital, Bradford

MEDICO LEGAL SOCIETY—A meeting of this society will be held at 11, Chandos street, London, W, to day, Friday, April 30th, at 8 30 P M, when a paper will be read by Dr Mackenzie Wallis, on the Purity of Ether and Chloroform in its Relation to Anæsthesia, and specimens will be shown by Dr B H Spilsbury

RONTGEN SOCIETY—A special general meeting of this society will be held on Tuesday, May 4th, at 8 15 P M, at the rooms of the Medical Society of London, 11, Chandos street, Cavendish square, London, W A paper on Some Problems in the Action of Radiation upon Tissues will be read by Professor Sidney Russ, the President, and demonstrations on the transmission of speech by light and on a new portable viewing lantern will be given by Professor A O Rankine and Dr H A Eccles respectively

A THIRD post graduate course of instruction in the diagnosis and treatment of venereal disease is being arranged by Mr. K M Walker at St Bartholomew's Hospital Clinic, Golden lane, E C, established by the Corporation of London The course will be held on Thursday afternoons at 5 30 P M, commencing Thursday, May 13th The beds attached to the clinic are available for the reception and study of suitable cases in addition to work in the out patient department There are still a certain number of vacancies Any medical practitioner wishing to attend is invited to send his name to the secretary, National Council for Combating Venereal Diseases, 81, Avenue Chambers, Vernon place, Southampton row, W C 1

THE LATE DR. E. S H. GILL—Eustace Stanley Hayes Gill, who died recently at Shaftesbury House Private Asylum, Formby, where he had lately taken over his father's duties as medical superintendent, was a well known member of the medical profession in Liverpool and the surrounding districts Educated at Liverpool University, he graduated M B, Ch B in 1906, and was for a time resident medical officer at the Brownlow Hill Workhouse Hospital A clever actor, he ungrudgingly gave his services wherever demanded in the name of charity, and it was while attending a dress rehearsal that he was taken ill, dying two days later Dr Gill leaves a widow and four children

UNIVERSITY OF MANCHESTER APPEAL—The intensive and extensive crusade undertaken to raise £500 000 on behalf of the university, to which we referred in THE LANCET on April 17th, is being carried on with great vigour in and around Manchester In the lay press there appear frequent pithy expositions of the work of various departments of the university on behalf of the community as well as in the advancement of learning Amongst topics dealt with by way of enlightening the proletariat and enlisting contributions from the public are such matters as "the training of the engineer," "the school of commerce," "extra mural teaching and what it means," "exclusion of women for lack of funds," "Manchester and its medical school as a great centre for clinical instruction," "education and the new democracy" This is the first appeal of its kind made on behalf of any British university, and whatever the financial result the university means to make it plain that it is the servant of the public without distinction of class Dr Alexander Irvine a persuasive speaker, makes known the needs and possibilities of the university by short addresses between the acts at theatres music halls, and kinema palaces, and in the dinner hour to the working man It would seem that the audiences are not consumed with enthusiasm for the university, but they are nevertheless responsive to reasoned appeals for help Another worker is touring the neighbouring towns in a car and addressing meetings of working class audiences If the result of the appeal does not come up to the standard expected it will not be through slackness in advertisement To the hoardings of the city is affixed a striking poster setting forth excerpts from letters supporting the appeal, with effigies of the five writers selected—Mr Clynes, Viscount Bryce, Lord Sumner, Lord Haldane, and Mr Fisher Outside the university is affixed a sort of barometric ladder as high as the Whitworth Hall, to show the rise of the fund At present a figure somewhat over £160 000 has been reached

PEOPLE'S LEAGUE OF HEALTH—The Lord Mayor of London will preside at a meeting to be held at the Mansion House on May 11th, at 3 P M, for the purpose of bringing before the lord mayors and mayors of the country the objects and scope of the league

PRESENTATION TO A MEDICAL MAN—On behalf of the inhabitants of Eastbourne the Duke of Devonshire recently presented Mr Charles O'Brien Harding, M R C S, L R C P, mayor of Eastbourne from 1915 to 1919, with an oil painting of himself to be hung in the town hall On the retirement of Mr Harding from the mayoralty in November last the honorary freedom of the borough was conferred upon him—

> ' In recognition of his distinguished services to the borough as a member of the town council during the past 23 years, as a justice of the peace for 16 years and as mayor of the borough for five years and in particular for the impartial dignified, and efficient manner in which he performed the many additional onerous, and exacting duties imposed upon him by reason of the Great War

CENTRAL MIDWIVES BOARD—A special meeting of the Central Midwives Board was held at Queen Anne's Gate Buildings, Westminster, on April 21st, with Sir Francis H Champneys in the chair The names of several midwives were struck off the Roll, the following charges amongst others having been brought forward —

> Being in attendance at a confinement the midwife neglected to provide for or to give all necessary directions for securing the cleanliness and comfort of the mother and child as required by Rule E 12, she neglected to wash the patient s external parts with soap and water, and to swab them with an efficient antiseptic solution as required by Rule E 8 and she neglected to remove the soiled linen from the neighbourhood of the patient and from the lying in room as soon as possible after the confinement as required by Rule E 11 A presentation being abnormal and the patient suffering from excessive bleeding the midwife did not explain that the case was one in which the attendance of a registered medical practitioner was required as provided by Rule E 21 (3) and medical aid having been sought for the patient she neglected to notify the local supervising authority thereof, as required by Rule E 22 (1) (a) A midwife was guilty of negligence and misconduct in the following respects she neglected to examine the placenta and membranes as required by Rule E 10 and she habitually employed an uncertified person to visit patients contrary to Section 1 (4) of the Midwives Act 1902 A child suffering from inflammation of and discharge from the eyes during her attendance, a midwife did not explain that the case was one in which the attendance of a registered medical practitioner was required as provided by Rule E 21 (5), and she did not on each occasion, when attending the patient wear a clean dress of washable material as required by Rule E 2 A midwife was not scrupulously clean in every way, as required by Rule E 2 and did not carry with her, when called to a confinement the bag or basket appliances or antiseptics required by Rule E 3

WELSH NATIONAL SCHOOL OF MEDICINE—The inauguration of a scientific section of the medical students' club marks an important step in the progress of what it is expected will soon become an important teaching organisation The ceremony was marked on April 23rd by an address given by Major General Sir Robert Jones The school is in process of being organised on the unit system of professors, and the Principal of the College announced that the full curriculum might be in action for the session 1921–22 The guests of the students' club were numerous, and, in addition, included the Lord Mayor, Sir William Seager, Sir John L Thomas, and the Marchioness of Bute, who is at present an anatomy student in the school Sir Robert Jones paid a tribute to the students for the step they were that day taking, and said that the future before the Welsh National School of Medicine ought to be a great one A medical school must have a sufficiency of clinical material and the speaker held that the supply could only be provided by the establishment of hospital accommodation outside big cities He held that the King Edward VII Hospital splendidly equipped as it was, could not on its present site meet the need, and advocated that while this institution should be a centre for clinics and for emergency and major beds, more accommodation should be placed in the fresh air and sunshine on such a site as he understood was likely to become available on the Rookwood Estate at Llandaff The war had shown that expensive buildings were not necessary, indeed, they were rather disadvantageous than otherwise Every type of case benefited by exposure to fresh air, and he dwelt upon its advantages in his own particular specialty, that of orthopædics He considered 1500 beds necessary as compared with 400 provided by the present hospital He pointed out that the scheme he advocated was already partially in existence, since mental cases, fever cases, and cases of phthisis were already treated outside the city, and only required to be linked up with the central hospital This connexion had recently been established for mental cases by means of out patient clinics He closed his remarks with a tribute to the Prince of Wales Hospital, initiated during the war for the after care of limbless warriors, and now to be devoted to the needs of the civilian population

GENERAL NURSING COUNCIL.—The nominees of the Board of Education on the Council are Hon. Mrs. Eustace Hills and Miss M. J. Tuke, Bedford College.

FROM to-day notifications received by the London medical officers of health of acute primary pneumonia, acute influenzal pneumonia, malaria, dysentery, trench fever, acute encephalitis lethargica, and ophthalmia neonatorum (whether notified by a medical practitioner or by a certified midwife) must within 12 hours of receipt be forwarded by the medical officer to the Metropolitan Asylums Board. The obligation already applies to acute polio-encephalitis and the usual notifiable infections.

THE NATIONAL HEALTH SOCIETY.—Sir George Newman, Chief Medical Officer of the Ministry of Health, delivered on April 22nd, before the National Health Society, the annual Priestley Memorial Lecture, taking as his subject "The Place of Public Opinion in Preventive Medicine." The lecture was preceded by the presentation of diplomas to the society's students by Princess Christian. Sir James Crichton-Browne, chairman of the society, presided in the absence of the Minister of Health. Among those present were: Sir Rickman and Lady Godlee; Sir William Church; Surgeon Rear-Admiral Sir Robert Hill, Medical Director-General of the Admiralty; Sir John Goodwin, Director-General A.M.S.; Sir E. Ray Lankester; Sir David Ferrier; Sir Malcolm and Lady Morris; Mrs. H. A. L. Fisher; Dr. Maurice Craig; Professor Kenwood; Dr. Higgins, medical officer of health, St. Pancras; Mrs. Kendal; Sir John MacAlister; Sir Frederick Mott; and Dr. Charles Porter, medical officer of health, St. Marylebone. A large gathering of members, friends, and subscribers of the society, and past and present students, filled the Robert Barnes Hall at the house of the Royal Society of Medicine.

ST. FRANCIS HOME.—An appeal is being made for the sum of £8000 for the purchase of a suitable house and its conversion into a nursing home, fully equipped, for the treatment of patients with small fixed incomes. When the home is once started it should be self-supporting, even when fees are kept down to a very low level, since the actual nursing is to be provided by a Church of England sisterhood who are prepared to give their services. The home will be run on ordinary nursing home lines, with private rooms, and patients will be able to choose their own physicians and surgeons if so desired. The medical signatories to the appeal include Mrs. M. Scharlieb, Sir Francis Champneys, Sir Malcolm Morris, and Mr. E. B. Turner. Contributions should be sent to Major Campbell, the honorary treasurer, St. Francis Home Fund, at 3, Southwell-gardens, S.W. 7, and any inquiries to the honorary secretary, Miss H. Vansittart, 34, Queen's Gate-terrace, S.W. 7.

CONJOINT BOARD OF SCIENTIFIC SOCIETIES.—The third annual report for the year 1919 gives evidence that the Board continues to discharge useful work. During the year there was a danger that supplies of casein and glue would fall short, and that aeroplane manufacture would suffer thereby. The Board came to an arrangement with the Air Group of the Ministry of Munitions, and carried out a research into the nature, functions, and manufacture of adhesives which resulted in the discovery of useful new adhesives. In addition to this, Dr. Schryver and his colleagues devised improvements in the manufacture of casein which effect a considerable saving in material and an improvement in its quality. The Committee on the Water Power of the Empire, with Sir Dugald Clerk as its chairman and Professor A. H. Gibson as secretary, drew up a second report, in which they are able to claim that they have stimulated interest in water power investigations in many parts of the Empire. A proposal has been put forward to hold an Imperial Water Power Conference in London, as the lack of facilities in universities and technical institutes for the specialised training of young men in hydro-electric engineering is noticeable. An elaborate report on the advisability or otherwise of the compulsory adoption of the metric system, drawn up by a committee with Mr. Wilson-Fox as chairman and Mr. A. R. Hinks as secretary, was discussed at a special meeting of the Board called for the purpose. The report emphasises the practical difficulties which would confront compulsory adoption, especially during the war. Other pieces of work summarised in the report relate to such subjects as the supply of timber for aeroplanes, the establishment of geophysical and petro-physical institutes, and the place of science in warfare. The Board has also taken its share in the discussion of the formation of national and international research councils and in advocating the publication of a work devoted to the mineral resources of the Empire. The *Bulletin*, which is printed and issued to the conjoint societies and the members of the Board, gives in a comprehensive form a forecast of the meetings of the societies and an early announcement of the papers to be read thereat.

Parliamentary Intelligence.

HOUSE OF COMMONS.

WEDNESDAY, APRIL 21ST.

Promotion of Surgeon Captains.

Sir WATSON CHEYNE asked the First Lord of the Admiralty whether he was aware that in the April Navy List only four officers were shown under the heading of surgeon rear-admiral, and that no surgeon captains had been promoted to fill the two vacancies created by the retirement in February last of Surgeon Rear-Admiral Dimsey, D.S.O., and the addition of one surgeon rear-admiral to the list as announced in March; and whether he was aware of any reason why surgeon captains should not be promoted at once on the occurrence of vacancies in the same way as captains in the executive branch are promoted to fill vacancies in the Rear-Admirals' List.—Sir J. CRAIG (Parliamentary Secretary to the Admiralty) replied: The question of promoting officers to fill the vacancies on the Surgeon Rear-Admirals' List is now under the consideration of the Board of Admiralty, and it is hoped to announce the promotions at an early date. With regard to the second part of the question; the reason is that promotion to the rank of surgeon rear-admiral is by selection, whereas promotion to rear-admiral is normally made by seniority.

Medical and Veterinary Students' Grants.

Sir MARTIN CONWAY asked the Minister of Labour whether ex-army students at the University of Liverpool, proceeding through a five years' course to a degree in veterinary surgery, might be granted an equal subsidy to that given to medical students, seeing that for the first two years the standard required for both classes was identical, and training practically identical, and that the expense to the student for both was the same.—Dr. MACNAMARA replied: As stated in the reply to my honourable friend's question of March 24th, the maximum annual awards permissible under the Training Grant Scheme for students proceeding to veterinary degrees at the University of Liverpool are the same as for medical students at the institution. The scheme provides machinery whereby a student who feels that the amount of his award is inadequate can appeal for an increase within the maximum permissible. Actually, owing to the continued high cost of living, the average awards now being made are on a somewhat higher scale than they were three or four months ago. In view of the fact that cases are dealt with individually, and that adequate machinery exists for remedying defects in assessment of grants, a general equalisation does not seem to be called for. I might add, however, that instructions have been given to the District Director to make fuller inquiry into the question, which will be further considered on receipt of his report. If my honourable friend has in mind any individual case of hardship I shall be glad if he will furnish me with particulars of it.

Medical Supervision of Elementary Schools.

Mr. GRATTAN DOYLE asked the Minister of Health if his attention had been called to the necessity of closer medical supervision of elementary schools; and if he could arrange for a weekly attendance of a doctor at each school, when he could pass the children in review, thereby anticipating illness and improving the health of the children and also saving parents loss of time, worry, and expense.—Dr. ADDISON replied: My honourable friend may be assured that the necessity for doing all that is practicable in this matter is fully recognised; but it is not, I think, necessary or practicable to ask authorities to arrange for the weekly attendance of school doctors at each school, as suggested by my honourable friend. I may remind him also that in 310 out of the 318 local education authorities in England and Wales there are school nurses performing some of the functions to which he refers.

Mr. BILLING: Will the right honourable gentleman consider the advisability of introducing tooth-cleaning drill in the mornings for small children, having regard to the extraordinarily beneficial effect clean teeth have on small children?—Dr. ADDISON: I think it is already in operation.

Mr. IRVING: Is the right honourable gentleman aware that in New York, and certainly in some countries, a daily review of children takes place; and is it not a fact that there is a daily variation in the health of children?—Dr. ADDISON: That is quite so; it depends on the reviews you have. There are not enough doctors and nurses in the country to review every child.

Mr. IRVING: In the cases I have mentioned there are men qualified.—Dr. ADDISON: The honourable gentleman may be assured that the school teachers review these children every day, and the children are very well trained and instructed in this matter. I do not think it requires special action.

Dental Legislation

Mr RAFFAN asked the Minister of Health if he could now state whether it was the intention of the Government to introduce legislation during the present session of Parliament for the purpose of carrying out the recommendations of the departmental committee on the Dentists Act, 1878 —Dr ADDISON replied I am not yet in a position to make a statement on this matter, but I hope to do so very shortly, possibly before Whitsuntide

Meat Inspection and Public Health

Mr JAMES BELL asked the Minister of Health if he was aware of the lack of a uniform system for the inspection of meat, and that the want of such a system constituted a menace to the public health, and whether he would arrange for the establishment of a uniform system which would include the ante mortem and post mortem examination of all animals intended for human consumption —Dr ADDISON replied I am aware of the desirability of securing uniformity in meat inspection in the interests of public health, and I am considering what steps can best be taken and what further powers may be necessary to that end

Alleged Deaths from Starvation

Commander Viscount CURZON asked the Minister of Health whether his attention had been called to the case of a man, his wife, and one child who were reported to have died of starvation in Bermondsey Hospital, whether he could state how such a thing was possible, and what action he had taken —Dr ADDISON replied Yes sir Immediately my attention was called to the case I instructed one of my inspectors to report upon it The medical superintendent of the infirmary reports that the man, his wife, and a child of 4 years old were admitted to the infirmary on April 10th, all three suffering from pneumonia The man died from pneumonia on the 13th The wife was delivered of a still born child on April 12th, and died of pneumonia on the 13th The child of 4 is still in hospital I propose to make further inquiries into this case

Mr W THORNE Will the right honourable gentleman on making inquiries strictly investigate the houses in which the people are living?—Dr ADDISON I shall certainly do that

Mr BILLING Will the right honourable gentleman consider the advisability, in calling for a report on the cases that still exist in London, of seeing whether some comprehensive scheme could be introduced into the Poor law administration with a view to preventing death rather than burying people after death?—Dr ADDISON All I can say is that for several months we have been considering a comprehensive scheme relating to Poor law reform and other matters arising out of it.

Circular 204 and Home Treatment

Mr IRVING asked the Pensions Minister if he was aware that prior to the issue of Circular 204 (revised), issued from the Ministry of Pensions, Feb 6th last, a disabled soldier, when placed on home treatment by the medical referee, and certified by such referee to be unable to work on account of his disability, caused or aggravated through war service, automatically became entitled to allowances equal to 100 per cent disability for the period of his incapacity for work, that according to this Circular 204 (revised) of Feb 6th, all cases of home treatment had now to be submitted to the Deputy Commissioner of Medical Services of the area for his approval or otherwise, if he would state the reasons for this change, so much to the disabled soldier's disadvantage, and if he could see his way to revert to the practice of the last three years, whereby a man certified as being incapable of doing any work on account of such a disability, and recommended for home treatment should be automatically entitled to benefit without reference to an area deputy commissioner of medical service —Major TRYON (Parliamentary Secretary to the Ministry of Pensions) replied Circular 204 does not involve any modification of the rights of disabled men under the pensions warrant The primary function of the Deputy Commissioner of Medical Services under that circular is to secure for the men the form of treatment most suitable to their disabilities Many men have in the past been recommended for home treatment who would have been better treated in one or other of the special institutions of the Ministry, as to which medical referees are of necessity not so well informed as the medical officers of the Department It is also the function of the Deputy Commissioner to assist in the protection of public funds by ensuring that treatment allowances are confined to those cases for which they were intended by Article 6 of the Royal Warrant My right honourable friend is unable to entertain the suggestion contained in the last paragraph of the question

THURSDAY, APRIL 22ND

Retired Military and Naval Medical Men at Pensions Ministry

Mr ROBERT YOUNG asked the Pensions Minister whether a considerable number of retired Regular naval and military medical men employed by the Ministry were in receipt of pensions from £600 to £1000 a year, whether demobilised temporary doctors whose sole source of income such an appointment frequently was were still in need of employment, and who through the appointment of these pensioned officers were frequently precluded from some of the better appointments, and whether pre war rank was often considered as a sine qua non of medical efficiency —Major TRYON replied Of the 12 retired Regular naval and military medical men employed as full time medical officers in the Ministry, six are in receipt of pensions of £600 a year or more This represents a little more than 1 per cent of the total number of medical men employed, and it is not therefore the fact that the employment of these gentlemen has any appreciable effect on the prospects of demobilised temporary medical men The medical officers of the Ministry are selected according to their qualifications for the particular work to be performed

Pensions of Blinded Soldiers

Mr FOREMAN asked the Pensions Minister if he would inform the House how many soldiers totally blinded in the war were now in receipt of pensions, whether there were any such blinded soldiers who were not receiving pensions, if so how many, if he would state the reasons for such non receipt of pensions, whether any responsibility was accepted by his Ministry for keeping in touch with such blinded men, even if they did not receive pensions to see that they did not fall on evil days, what was the maximum weekly pension for disablement by blindness, and if any investigations were made to ascertain if it was adequate —Major TRYON replied Approximately 1300 soldiers discharged for total blindness have been pensioned under the Royal Warrant, and 110 have been refused pensions The latter are men whose blindness arose from causes not connected with their military service, or was due to their own serious negligence or misconduct All men discharged for blindness are sent to "St Dunstan's" (or in Scotland to Newington House, Edinburgh), where they are trained in a new occupation, suitable to their condition before returning to their homes After their return the institutions mentioned continue to keep in touch with them by means of local representatives The disablement pension for total blindness varies from 40s to 60s according to rank together with a constant attendant allowance of 10s to 20s a week, a wife's allowance of 10s a week, and additional allowances for children

Mr BILLING Can the honourable and gallant gentleman say what is being done with the 110 odd blinded men who have not been pensioned, whether anything was being done for them or whether they were being thrown on the rates?—Major TRYON If they are at "St Dunstan's" they are provided for

Mr BILLING What can they do after they leave St Dunstan's?

Colonel C LOWTHER Is it a fact that no provision is made for blind men who have lost their sight in the service of their country?—Major TRYON If they lose their sight in the service of their country they are provided for

Prime Minister and Blind Deputation

Mr WATERSON asked the Prime Minister if it was his intention to personally interview the deputation of the blind on the 26th or 27th of this month —Mr BONAR LAW replied The Prime Minister has informed the deputation that if he is in London when they arrive he will be pleased to receive them, and in the event of his being still away he suggested that I should receive them on his behalf

Vaccination Officers

Mr WATERSON asked the Minister of Health the approximate cost of the vaccination officers in 1913 and 1919 respectively —Dr ADDISON replied The approximate cost of public vaccination in England and Wales was £168 000 in the financial year 1912-13 and £112 000 in the financial year 1918-19 I have no separate information as to the cost of the vaccination officers

Mr WATERSON asked the Minister of Health if it was his intention to repeal the Vaccination Acts?—Dr ADDISON No Sir

MONDAY APRIL 26TH

Epileptic Officer's Claim for Pension

Mr JAMESON asked the Secretary for India if he was aware that a lieutenant in the 74th Punjabis, whose name had been privately communicated passed through Sandhurst as medically fit in 1912, developed epilepsy, of which he had no previous symptoms, when on service in China after an attack of fever in 1915 was invalided out for epilepsy in 1916, and refused a pension on the ground that the epilepsy was not the result of military service, and if he would take steps to have a pension granted —Mr MONTAGU replied Under the Indian Army Regulations an officer is not eligible for pension who is invalided out after less than three years' service in India in the Indian Army unless the disability is certified by the proper medical authority as having been caused by duty. The case referred to was very carefully considered, but the medical authorities could not regard the epilepsy as having been caused by military service, and the officer was therefore not awarded a pension. He was, however, granted a gratuity of one year's British pay.

Welfare of the Blind.

Dr. ADDISON presented a Bill to promote the welfare of blind persons. No explanation of the Bill was given, but it is understood that the chief proposal of the measure is that blind persons who are unable to work should be entitled to receive a State pension of 10*s.* per week between the ages of 50 and 70 years on the same conditions as those attaching to the receipt of old age pensions. The Bill will also, it is stated, provide for the registration of all voluntary institutions making public appeals for funds. Further training facilities for the blind are to be provided through certain local authorities.

TUESDAY, APRIL 27TH.

National Health Insurance Bill.

The National Health Insurance Bill was considered by Standing Committee A of the House of Commons.

Mr. G. LOCKER-LAMPSON moved an amendment designed to secure that local authorities providing treatment for persons suffering from tuberculosis should co-opt persons with experience of the working of tuberculosis treatment.

Dr. ADDISON explained that the purpose of taking sanatorium benefit out of the National Health Insurance Bill was that health services were contemplated which would more conveniently deal with tuberculosis. The amendment was withdrawn.

Major FARQUHARSON moved to insert after Clause 8 a new clause as follows:—

> 1. Any medical practitioner aggrieved by a decision of the Minister, or of any special body through which the powers and duties of the Minister, under Section 15, Subsection (2) (*b*), of the Act of 1911, are exercised, to remove his name from any list of medical practitioners may appeal against the decision to the High Court within the time, and in the manner, and on the conditions directed by the rules of court. 2. The costs of any such appeal shall be in the discretion of the court, and no appeal shall be allowed from any order or decision of the court in any such appeal.

Dr. ADDISON replied that no medical man was compelled to go on the panel, and he could come off it when he liked. When there was this freedom of contract he did not see that there was any case for appealing to the High Court. A medical man before he was removed from the panel would have an opportunity to lay his case before his professional brethren.

The new clause was withdrawn and the Committee stage of the Bill was concluded.

Homes for Mental Cases.

Major ENTWISTLE asked the Pensions Minister if he would say how many homes of recovery were under his control, how many mental cases had passed through, and how many were receiving treatment.—Mr. MACPHERSON replied: There are 20 such institutions under the control of the Ministry, and 2383 men are at present under treatment. I am making inquiry with regard to the second part of the question, and will inform my honourable and gallant friend of the result.

Mental Cases at Warrington and Whitchurch.

Major ENTWISTLE asked the Secretary for War and Air if he would state how many mental cases passed through Warrington and Whitchurch hospitals; how many mental cases had been reported to his department since August 4th, 1914; how many had recovered; how many died; and the disposition of the remainder.—Mr. CHURCHILL replied: The number of mental cases which passed through the two hospitals mentioned were: Warrington, 8410 up to March 31st, 1920, the date of the latest report; Whitchurch, 1862 up to Jan. 2nd, 1920, the date on which the hospital was closed. The figures asked for in the remainder of the question will not be available until the Medical History of the War is published, which will not be for some two or three years. The following details, however, are available with regard to the patients treated in the two hospitals referred to in the question:—Warrington (from the date of opening to Dec. 31st, 1919): Number of cases treated, 8127; discharged to their homes recovered, 3657; discharged to asylums, 1026; transferred to other military mental hospitals or repatriated overseas, 2433; died, 108; remaining in hospital, 903. Whitchurch (from date of opening to Oct. 31st, 1919): Number of cases treated, 1862; discharged to their homes recovered, 1102; discharged to asylums, 446; died, 33; remaining in hospital, 281.

Death-rate of Old-age Pensioners.

Mr. W. THORNE asked the Minister of Health (1) the number of old-age pensioners for the years ending March, 1918, 1919, and 1920; and (2) the death-rate of old-age pensioners for the same years.—Mr. BALDWIN (Secretary to the Treasury) replied: The number of old-age pensions payable on the last Friday in the year ended March 31st, 1918, was 943,077, and in the year ended March 31st, 1919, 920,198. The number for the year ended March 31st, 1920, is not yet available, but the number payable on the last Friday in December, 1919, was 926,631. The corresponding figures of the pensioners of whose death information has reached the pension officer are as follows: In the year ended March 31st, 1918, 94,478; in the year ended March 31st, 1919, 105,746; in the nine months ended Dec. 31st, 1919, 68,550.

Financial Provision for Sanatorium Benefit.

Major D. DAVIES asked the Minister of Health what arrangements were being made to provide the money for sanatorium benefit, which, under the National Health Insurance Bill, 1920, it was proposed to take out of the hands of the Insurance Committees.—Dr. ADDISON replied: The financial arrangements which will be necessary on the termination of sanatorium benefit are under consideration, and I hope to be in a position to make an announcement on this subject at an early date.

Appointments.

COFFIN, S. W., M.R.C.S., L.R.C.P. Lond., has been appointed Anæsthetist to the Hospital for Diseases of the Throat, Golden-square.

JEFFERISS, I. M., L.R.C.P. Lond., M.R.C.S., Medical Officer of Health for Okehampton (Devon).

PARKINSON, JOHN, M.D. Lond., M.R.C.P. Lond., Assistant Physician to the National Hospital for Diseases of the Heart.

TAYLOR, J., M.R.C.S., L.S.A., Honorary Consulting Radiologist to the Bristol Royal Infirmary.

Certifying Surgeons under the Factory and Workshop Acts: STEWART, F. M., L.R.C.P., & S. Edin. (Hull); MCCALLUM, J. D., M.B., Ch.B. Glasg. (Lochgilphead).

Vacancies.

For further information refer to the advertisement columns.

All Saints' Hospital (for Genito-Urinary Diseases), 49–57, Vauxhall Bridge-road, Victoria, S.W.—H.S. £150.

Barnsley, Beckett Hospital.—Jun. H.S. £200.

Bath, Royal Mineral Water Hospital.—Res, M.O. £250.

Battersea Borough Council.—Asst. M.O.H. £700.

Bermondsey Borough.—Female Asst. M.O.H. £600.

Birkenhead Borough Hospital.—Jun. H.S. £170.

Birmingham Union, Dudley-road Hospital.—Res. Asst. M.O. £365.

Bootle Borough.—M.O.H., &c. £800.

Bournemouth, Royal Victoria and West Hants Hospital.—Hon. Asst. S. to Oph. Dept. Three Hon. Anæs.

Bradford Children's Hospital.—H.S. £180.

Bridgend, Glamorgan County Asylum.—Jun. Asst. M.O. £350.

Brighton, Royal Sussex County Hospital.—H.P. £150.

Bury St. Edmund's, West Suffolk General Hospital.—Res. H.S. £175.

Cairo, Egyptian Government, Ministry of Education.—Professor of Pathology. L.E. 1200–1400.

Camberwell Infirmary, Brunswick-square, Camberwell.—Locum Tenens Asst. M.O. £7 7*s.* weekly.

Cambridge, Addenbrooke's Hospital.—H.S. £130.

Cancer Hospital, Fulham-road, S.W.—Three Anæsthetists.

Canterbury, Kent and Canterbury Hospital.—Two Res. M.O.'s. £200 and £150 respectively.

Chester County Asylum.—Third Asst. M.O. £350.

City of London Hospital for Diseases of the Chest, Victoria Park, E.—M.O. £225. Also Asst. M.O. £125 Also Dent. S.

Croydon County Borough.—Asst. M.O.H. and Asst. Sch. M.O. £500.

Cupar-Fife, Fife and Kinross Joint Sanatorium Board, Glenlomond Sanatorium.—Asst. Res. M.O. £300.

Derby, Derbyshire Hospital for Women, Bridge-street.—Hon. Asst. S.

Derby, Derbyshire Royal Infirmary.—Oph. H.S. £200.

Didworthy, South Brent, Devon and Cornwall Sanatorium for Consumptives.—Asst. M.O. £250.

Dr. Barnardo's Homes, 18–26, Stepney Causeway, E.—Sen. M.O.

Doncaster Royal Infirmary and Dispensary.—Asst. H.S. £225.

Downs Sanatorium, Sutton, Surrey.—Sen. Asst. M.O. £645 5*s.*

Durham University.—Asst. in the Dept. of Bacteriology. £600.

Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—Female Jun. Asst. P., Clin. Assts., Two H.S.'s, H.P., and Obstet. Asst. £50 each.

Evelina Hospital for Sick Children, Southwark, S.E.—Medical Radiographer. £120.

Exeter City.—Asst. Tuberc. O. and Asst. M.O.H. £500.

Freemasons Hospital and Nursing Home, 237, Fulham-road, Chelsea, S.W.—Res. M.O. £250.

Galway, University College.—Professorships of Anat. and Phys.

Guildford, Royal Surrey County Hospital.—Third H.S. £150.

Hospital for Sick Children, Great Ormond-street, London, W.C.—Surg. Registrar. £200.

Ipswich.—Asst. County M.O.H. £500.

Ipswich, East Suffolk County Education Committee.—Dent. S. £450.

Kensington Board of Guardians Institutions, Marloes-road.—Third Asst. Res. M.O. £325.

Leeds City.—Asst. M.O. for Maternity and Child Welfare. £500.

Leeds City, Tuberculosis Sanatorium, Killingbeck.—Med. Supt. £500.

Leeds Public Dispensary.—Res. M.O. £200.

Liverpool, Royal Southern Hospital.—Cas. O. £150.

London Homœopathic Hospital, Great Ormond-street and Queen's-square, Bloomsbury, W.C.—S. for Dis. of Eye.

London Temperance Hospital, Hampstead-road, N.W.—Cas. O. £120.

Macclesfield, Cheshire County Asylum, Parkside.—Asst. M.O. £350.

Manchester Children's Hospital, Gartside-street, Manchester.—Asst. M O £200

Manchester County Asylum, Prestwich.—Asst M O £450

Manchester Hospital for Consumption and Diseases of the Throat and Chest, Bowdon, Cheshire.—Res M O £350

Middlesbrough, North Ormesby Hospital.—Asst H S £200

Montrose Royal Asylum.—Asst M O £300

Newcastle-upon Tyne, City Hospital for Infectious Diseases.—Res Med Asst £350

Newcastle-upon-Tyne Education Committee.—Asst Sch M O £500 Two Dental S s £400

Newcastle upon Tyne, Hospital for Sick Children.—Jun Res M O £200

Newport (Mon) Education Committee.—Asst Sch M O and Med Insp of Schools £500

Norfolk County.—Tuberc O £600

Norwich City.—Asst M O H and Res M O at Isolation Hospital £450

Norwich, Norfolk and Norwich Hospital.—Cas O £200

Nottingham Education Committee.—Sch Dent £500

Nottingham General Hospital.—Cas H S £150

Nottingham, Notts County Council.—Female Asst Child Welfare M O and Asst Sch M O £500

Peterborough City and Borough.—M O H £650

Portsmouth Royal Hospital.—H S £150

Preston Royal Infirmary.—Jun H S £180

Rhondda Urban District Council.—Dental S £400

Royal Free Hospital, Gray's Inn road, W C.—Sen Res M O £200 Also Cas O £100 Also Two H S s £50

St Thomas's Hospital, S E.—P

Seamen's Hospital Society, Hospital for Tropical Diseases, Endsleigh-gardens, N W.—H P £100

Sheffield, East End Branch of the Children's Hospital.—H S £150

Sheffield Royal Hospital.—Asst Cas O £150

Sleaford, Kesteven County Asylum, near Sleaford, Lincolnshire.—Asst M O £350

Southampton Royal South Hants and Southampton Hospital.—Pathologist.

Southend-on Sea, Victoria Hospital.—H S £200

Stamford, Rutland, and General Infirmary, Stamford.—H S £200

Sunderland Royal Infirmary.—H P £200

Swansea General and Eye Hospital.—Jun H S £200

Torquay, Torbay Hospital.—H S £200

Union of South Africa.—Asst Health O £900 Also Two Med Inspectors, £850 each Also Asst Path £750 Also Government Med and Port Health O £750

University of London King's College Department of Physiology.—Demonstrator in Physiology £300

Wells Asylum, Somerset.—Sen Asst M O, £450

West Bromwich and District Hospital.—Res H S £200

West Ham Union.—Two Specialist Consultants £150

Westminster Hospital, Broad Sanctuary, S W.—H S

Whitehaven and West Cumberland Infirmary.—Res H S £180

Willesden Institution, Acton lane Willesden.—Res Asst M O £350.

Wimbledon, Borough of.—Asst M O H £500

Worcester County Borough.—Asst M O H £500

Worcester County and City Mental Hospital, Powick.—Jun Asst M O £300

THE Chief Inspector of Factories, Home Office, S W, gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Tarbert and at Yatton

Births, Marriages, and Deaths.

BIRTHS.

ALEXANDER.—On April 25th, at Cade House, Riverhead, Sevenoaks, the wife of J Finlay Alexander, M A, M D Camb, *of a son*

ARONSON.—On April 21st, at the Mill House, Chipperfield, King's Langley, Mollie wife of Hugh Aronson, of a daughter

CHAMBERS.—On April 19th, at a nursing home in London, the wife of Captain G O Chambers, M C, R A M C, *of a son*

KILNER.—On April 21st, at Albert-crescent, Bury St Edmund's, the wife of H Goff Kilner (late Major, R A M C, Croix de Guerre), of a daughter

PURSER DAVIES.—On the 22nd April, at a nursing home, Cardiff, to Evelyn (*née* Wall Row), wife of Purser Davies, M C, M B, Ch B, of Newport, Mon.—a daughter

WAY.—On April 21st, at "Croyland," Finchley road, N W, to Phillis wife of C Berkeley Way, M C, M B, B S Lond, &c, late 50th Field Ambulance—a daughter

MARRIAGES.

FENWICK—GRAY.—On April 20th, at Airlie Bridge of Weir, Captain S Fenwick, M C, R A M C, to Marguerite Amelia, elder daughter of John Gray, Bridge of Weir

VANDERMIN—HART.—On April 17th, at St Mary Magdalene's Church, Enfield, Henry F Vandermin, M D B S Lond, to Gwendolen Mary, elder daughter of Mr and Mrs A H Hart, of Hillcrest, *Enfield*

DEATHS.

GILL.—On April 16th, suddenly, at Shaftesbury House Formby, near Liverpool, in his 42nd year, Eustace Stanley Hayes Gill, M B, Ch B Liverpool, the dearly loved husband of Edith Mary Gill, and the well beloved and only son of Dr and Mrs Stanley Gill

PARSONS.—On April 27th, at a nursing home in London P H Parsons, L R C P, L R C S Edin, L F P S Glasg, aged 47

SHERRARD.—On April 24th, at Lusted Hall, Tatsfield, Caesar Dudley Sherrard, M R C S, aged 67

THORNE.—On April 24th at Wood View, Dore, C A Thorne, M B E, L R C P, L R C S, J P, in his 63rd year

WOOD.—On April 24th, while studying at Genoa, Cecil Denyer Wood, M.B, M R C P, of Sleaford, in his 32nd year

N.B.—A fee of 7s 6d is charged for the insertion of Notices of Births, Marriages, and Deaths

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE 1, Wimpole-street, W.

MEETINGS OF SECTIONS

Tuesday, May 4th

SURGERY SUBSECTION OF ORTHOPÆDICS (Hon Secretaries—A S Blundell Bankart, R C Elmslie) at 5 30 P M

Annual General Meeting—Election of Officers and Council for 1920-1921

Cases (at 5 P M)

Mr Laming Evans Dislocation of the Hips, Knees, Ankles, and Radii

Mr C J Marshall Deformity of the Lower Limbs

Mr R C Elmslie Paralytic Dislocation of the Hips

Wednesday, May 5th

SURGERY (Hon Secretaries—Cyril A R Nitch, Herbert J Paterson) at 5 30 P M

Exhibition of Specimens (at 4.30 P M)

Annual General Meeting—Election of Officers and Council for 1920-1921

Exhibition and Demonstration of Specimens of Innocent Tumours of Alimentary Tract and Leather-bottle Stomach

Thursday, May 6th

A CONJOINT MEETING of the SECTION OF OBSTETRICS AND GYNÆCOLOGY WITH THE NORTH OF ENGLAND AND MIDLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETIES will be held

At 10 30 A.M Discussion on The Treatment of Antepartum Hæmorrhage, to be opened by Dr Hastings Tweedy

At 2 P M Annual General Meeting—Election of Officers and Council for 1920-1921, followed by—

Discussion on Rupture of the Cæsarean Section Scar in subsequent Pregnancy and Labour,' to be opened jointly by Dr Munro Kerr and Dr Eardley Holland Reports will be presented from various hospitals

At 7 30 P M Dinner at the Great Central Hotel Price of tickets, 10*s* 6*d* Mr J D Malcolm, President of the Section in the chair

It is earnestly hoped that Members of the Section will make a special effort to attend these meetings and the dinner

Will Members who wish to take part in the discussion or to be present at the dinner, *kindly send their names as soon as* possible to one of the Hon Secretaries (J S Fairbairn 42 Wimpole street, W 1, *Herbert* Williamson, 8, Queen Anne street, W. 1)

Friday, May 7th.

LARYNGOLOGY (Hon Secretaries—Irwin Moore, Charles W Hope) at 4 45 P M

Annual General Meeting—Election of Officers and Council for 1920-1921

Cases (at 4 P M) will be shown by—

Mr Dawson, Mr Layton, Dr Dan McKenzie, Dr Irwin Moore Mr Norman Patterson Mr Ryland, and others

ROYAL SOCIETY OF ARTS, John-street Adelphi, W C

WEDNESDAY, May 5th.—4 30 P M, Paper—Dr C E K Mees A Photographic Research Laboratory

ASSURANCE MEDICAL SOCIETY, 11, Chandos street, Cavendish square, W

WEDNESDAY, May 5th.—4 30 P M, Council Meeting 5 30 P M Paper—Sir Thomas Oliver Gastro-intestinal Operations and their Sequelæ, especially Cancer, *from a Life Insurance* Point of View

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST GRADUATE COLLEGE, West London Hospital, Hammersmith, W

MONDAY, May 3rd.—2 P M, *Dr G Stewart* Medical Out patients 5 P M, Dr Morton X Ray Therapeutics

TUESDAY.—10 A.M, Dr Robinson Gynæcological Operations 5 P M, Dr Pernet Lupus Vulgaris and Syphilis

WEDNESDAY.—11 30 A.M, Mr MacDonald Demonstration of Cystoscopy 5 P M, Dr Beddard Practical Medicine

THURSDAY.—10 30 A M, Dr Simson Gynæcological Demonstration 5 P M, Mr B Harman Pathology of Cataract

FRIDAY.—2 30 P M, Mr Addison Demonstration of Surgical Cases 5 P M, Sir R Armstrong Jones Mental Disease

SATURDAY.—10 A M, Dr A Saunders *Medical Diseases of* Children 12 noon Mr Sinclair Surgical Anatomy of the Abdomen

Daily.—10 A M, Ward Visits 2 P M, In patient and Out-patient Clinics and Operations

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON)

A Course of Post Graduate Lectures on Syphilis is being given by various members of the staff of King's College Hospital during the present year

FRIDAY, May 7th.—9 15 P M, Mr A Edmunds Syphilis in Surgical Practice (2)

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S W

MONDAY, May 3rd.—2 P M, Dr Melville X Ray Department

TUESDAY.—2 P M, *Dr D Grant Throat Department* 2 30 P M, Demonstration—Dr Maitland Doubtful Cases

WEDNESDAY.—10 30 A M, Dr Punch, Demonstration of Museum Specimens 2 P M, *Dr Gosse Cardiographic Department* 2 30 P M, Demonstration—Dr Beaumont Doubtful Cases

THURSDAY.—10 30 A.M, Dr Burrell Artificial Pneumothorax 2.30 P M, Demonstration—Dr Young Doubtful Cases

FRIDAY.—2 P.M., Dr. Melville: X Ray Department. 2.30 P.M., Demonstration:—Dr. Jex-Blake: Doubtful Cases.
SATURDAY.—1 P.M., Dr. Batty Shaw: Special Demonstration in the Out-patient Department.

UNIVERSITY OF LONDON.
Advanced Lectures in Physiology to Students of the University and others interested in the subject.
A Course of Eight Lectures on Nutrition will be given at King's College for Women (Household and Social Science Department), Campden Hill-road, Kensington, W.
MONDAY, May 3rd, AND TUESDAY.—5 P.M., Lectures I. and II.:—Dr. E. Mellanby.

CHADWICK PUBLIC LECTURES, Pathological Lecture Hall, The New Medical Schools, Cambridge.
TUESDAY, May 4th.—5 P.M., Dr. F. G. Crookshank: Man and Disease—I., Our Conceptions of Disease and Diseases.
FRIDAY.—5 P.M., Dr. F. G. Crookshank: Man and Disease—II., The Relation of Medicine to the Biological Sciences.

UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE POST-GRADUATE LECTURES, at the Sheffield Royal Hospital.
WEDNESDAY, May 5th.—4 P.M., Prof. A. Hall: Gall-stones.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.
TUESDAY, May 4th.—4.30 P.M., Lecture:—Mr. J. P. Buckley: Some Practical Points on Lower Limb Stumps and Artificial Limbs.

SALFORD ROYAL HOSPITAL AND ANCOATS HOSPITAL POST-GRADUATE DEMONSTRATIONS, at the two Hospitals alternately.
THURSDAY, May 6th.—4.30 P.M., Mr. Smalley: Technique of Routine Examination of the Ear, Nose, and Throat in General Practice. (At the Salford Royal Hospital.)

Communications, Letters, &c., to the Editor have been received from—

A.—Air Ministry, Lond.; Mr. J. E. Arnold, Lond.; Assurance Medical Society, Lond., Hon. Secs. of.

B.—Mr. J. O. Butcher, Lond.; Mr. J. Burns, Edinburgh; Mr. W. H. Battle, Lond.; Dr. J. L. Birley, Lond.; Col. R. J. Blackham, Chatham; Dr. H. Brown, Lond.; Dr. W. H. Broad, Liverpool; Dr. C. Borg, Floriana, Malta; Dr. G. Black, Dublin; Dr. J. Blomfield, Lond.

C.—Dr. H. P. Cholmeley, Forest Row; Prof. E. L. Collis, Cardiff; Major A. G. Coullie, I.M.S., Duns; Dr. A. Castellani, Lond; Sir F. Colyer, Lond.; Child Study Society, Lond.; Dr. W. Cramer, Lond.

D.—Mr. H. Dickinson, Lond.; Dr. H. Drinkwater, Wrexham; Dr. G. Dinolt, Vienna; Mr. F. G. Davies, Worcester.

E.—Capt. J. I. Enright, R.A.M.C., Liverpool; Mr. A. B. Elliott, Abergele; Epsom College, Sec. of; Miss E. Evans, Cardiff.

F.—Dr. J. Freeman, Lond.; Factories, Chief Inspector of, Lond.; Mr. A. G. T. Fisher, Horley; Dr. A. Foster, Christchurch, N.Z.; Dr. R. S. Fullarton, Glasgow; Mr. J. E. S. Frazer, Lond.

G—Mr. A. W. Green, Lond.; Mr. A. P. Gibbons, Lond.; Dr. H. H. Gellert, Bradford; General Nursing Council, Lond.; Dr. H. E. Garrett, Lond.; Mr. H. T. Gray, Lond.; Gloucestershire Surgical Appliances Co., Cheltenham.

H.—Dr. R. C. Holt, Didsbury; Mr. C. A. Hoefftcke, Lond.; Hunterian Society, Lond.; Mr. C. Higgens, Lond.; Major H. P. Hehir, I.M.S.; Dr. J. K. Haworth, Newcastle-on-Tyne; Harrogate Royal Baths, General Manager of.

I.—Incorporated Association for Promoting the General Welfare of the Blind, Lond.; Insurance Committee for the County of London; Illuminating Engineering Society, Lond.

J—Dr. S. B. Jackson, Lond.; Mrs. F. E. Johnson, Southborough.

K.—Dr. D. Keilin, Cambridge; Dr. W. H. Kesteven, Kingston; King's College Hospital Medical School, Lond., Sec. of.

L.—Miss E. Lowry, Lond.; Mr. E. M. Little, Lond.; Dr. J. C. G. Ledingham, Lond.; Mrs. C. Loy, Rochester.

M.—Ministry of Health, Lond.; Mission to Lepers, Lond., Sec. of; Dr. R. Morton, Lond.; Mr. T. Martin, Bristol; Dr. R. O. Moon, Lond.; Dr. J. S. Maher, New Haven; Medico-Legal Society, Lond.; Mr. U. Marks, Swansea; Ministry of Agriculture and Fisheries, Lond.

N.—Sir A. Newsholme, Ripon; National Baby Week Council, Lond.; Dr. H. B. Newham, Lond.; National Safety Council, Chicago; National Council for Combating Venereal Disease, Lond.

P.—People's League of Health, Lond.; Dr. H. R. Phillips, Lond.; Panel Committee for the County of London; Sir D'Arcy Power, Lond.; Polish Red Cross Society, Lond.; Dr. R. Pagniello, Melfi; Psycho-Neurological Society, Lond., Hon. Sec. of; Dr. G. A. Casales de Pury, Cannes; Sir Arthur Pearson, Lond.; Mr. H. Platt, Manchester.

R.—Mr. H. Rundle, Southsea; Rontgen Society, Lond.; Dr. J. D. Rolleston, Lond.; Dr. W. C. Rivers, Worsboro' Dale; Royal Society, Lond.; Royal Institution of Great Britain, Lond.; Royal Society of Arts, Lond.

S.—Mrs. J. E. Smith, Bradford; Capt. C. F. Strange, Chatham; Prof. W. Stirling, Manchester; Dr. E. W. Scripture, Lond.; Mr. E. G. Slesinger, Lond.; Society for the Prevention of Venereal Disease, Lond., Hon. Sec. of; Society of Tropical Medicine and Hygiene, Lond.; Save the Children Fund, Lond.; Dr. J. J. Scanlan, Lond.; Dr. C. Singer, Oxford; Dr. W. D. D. Small, Edinburgh; Society of Apothecaries of London, Clerk of.

U.—University of London, Publications Sec. of; Mr. E. Upchurch, Lond.

V.—Miss H. Vansittart, Lond.; Dr. S. M. Vassalo, Uganda; Vermont State Medical Society, Sec. of.

W.—Capt. E. J. Wyler, R.A.M.C., Portsmouth; West London Hospital Post-Graduate College; Mr. H. G. Wharry, Lond.; Dr. J. G. Watkins, Bootle; West London Medico-Chirurgical Society, President and Council of; Mr. A. Warmington, Lond.; Dr. J. D. Wynne, Norwich; Dr. C. Westman, Lond.

Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, London, W.C. 2.

Notes, Short Comments, and Answers to Correspondents.

THE CHINESE HOSPITAL IN FRANCE, 1917–1919.

BY C. FREDERICK STRANGE, M.R.C.S., F.R.G.S.,
CAPTAIN, R.A.M.C.; MÉDAILLE D'HONNEUR DES ÉPIDÉMIES.

IT is possible in this article to tell only part of the story of the First Chinese General Hospital in France, and of all the good work that was done there. When it was realised that the outcome of the Great War was going to be determined by man power, and that every Britisher available was wanted for the firing line, it was decided to form a corps recruited from Chinese voluntary labour for work on the lines of communication and at the ports. From small beginnings the corps rapidly assumed great dimensions, so that when the Armistice was signed there were approximately 130,000 Chinese labourers in France all on a three years' agreement. Noyelles was chosen as Chinese Depôt Headquarters and a large hospital built there for the sick and wounded. This was the main hospital, but there were smaller ones established in various centres such as Calais, Boulogne, Dieppe, Rouen, which acted as feeders to the one central base hospital, which was known originally as No. 1 Chinese General Hospital (to which I acted as surgical specialist), but afterwards as No. 3 Native Labour General Hospital. Commencing in the spring of 1917, while the battle of Arras was still raging, it grew rapidly in dimensions to a 2000-bedded hospital.

The greatest number of in-patients on any one day was 2600. When hostilities ceased there was not a better organised or better equipped hospital in France, and under the able command of Lieutenant-Colonel G. Douglas Gray, of the British Legation, Peking, there grew up large special departments to cope with the ever-increasing demands. These departments, each under the charge of specialists, included: surgical, medical, ophthalmic, mental, tuberculosis, leprosy, venereal, pathological and bacteriological. The hospital covered a very large area and, fortunately, had plenty of room to expand.

Speaking generally, there were no special diseases peculiar to the Chinese, but uncommon diseases such as leprosy, insanity, and tuberculosis with various unusual clinical manifestations, occurred. Diseases of the eyes necessitated special treatment to prevent their spread amongst British troops and the French population, with whom the Chinese mixed freely.

There was a peculiar and insistent belief prevalent amongst a large section of the British Army that there were many Chinese women amongst the labourers in the Chinese Labour Corps. But I gladly take this opportunity of denying this charge. There was not a single woman amongst them, though some of the Chinese labourers, either in facial appearance or in dress, appeared like women to the eyes of the untravelled Westerner.

Medical Examination.

The Corps was recruited from picked labourers, mostly from North China, where the climate resembles that of Northern France. All were submitted to a thorough medical examination at Wei-hai-wei or Shanghai before embarkation. Many thousands were rejected in China as unfit. After a long voyage round the world they ultimately arrived in France, and were immediately taken to the Headquarter Depôt, where they had to undergo another most thorough inspection by the medical officers of the hospital. Every recruit was examined by at least three doctors before he was passed as fit into a labour unit. This examination was undoubtedly very amusing to those who had the opportunity to witness it and who do not know the Oriental. The men were assembled in companies spread out in long lines on a wide field reserved for the purpose. They came along in single file to the doctor who examined first the throat, abdomen, and limbs; the throat and neck with special reference to mumps and tubercular glands; the abdomen with special reference to enlarged spleen and intestinal troubles; and the musculature of the arms and legs to detect any evidence of beri-beri or leprosy. When passed they ran away shouting for joy to another part of the field, where they were stripped behind screens and a thorough urino-genital examination was carried out for any evidence of syphilis or gonorrhœa. Thence they were conducted to another part of the field, where the eye specialists—always two or three in number—examined their eyes, especially for trachoma, which is very common amongst the Chinese. On the whole, the various shipments arrived in excellent health. Any found diseased were immediately admitted to hospital and not allowed to leave until cured.

"*The Old Disease*"

Amongst medical diseases tuberculosis was far the most rampant and destructive to life It was astonishing to note the rapidity with which men, apparently healthy on arrival in France, fell victims to this disease We had many special wards where all cases of tuberculosis were isolated, and, generally speaking, the only deaths which occurred in hospital were from phthisis or other forms of general tuberculosis The hospital cemetery at Noyelles bears testimony by the hundreds of white crosses to the ravages of this disease amongst the Chinese Almost every day there was at least one death from phthisis We had special wards for surgical tuberculosis so that this disease was isolated at once and everything done to prevent its spread The Chinese as a nation have suffered from pulmonary tuberculosis for many centuries past, so that it is now called by them by the significant title 'The Old Disease" Major Graham Aspland made a very efficient officer in charge of the Medical Division, and when he went to China in charge of a hospital ship full of the sick and afflicted his place was efficiently taken by Captain E J Peill

Lunacy

I cannot explain why so many Chinese went mad in France Our mental hospital was very well organised indeed and came in for universal praise from visitors Frequently there were over a hundred insane Chinese housed in it Captain H L Fearn, of Shanghai, made an excellent officer in charge He lived in the same compound with the insane and slept on the same premises within barbed wire Very rarely a lunatic escaped One religious maniac managed to do so He was always wanting everybody to baptise him, and he got upon the top of the hut one day in search of someone for this purpose and fell off, breaking his right tibia and fibula He was admitted to one of my surgical wards and I successfully plated his tibia, but he had to be shackled to the bed all the time he was in my ward When healed, he returned to the mental compound, but took the first opportunity to escape How he managed the barbed wire no one knows, but he was found at 5 A M , at a height of 20 feet, on the top of the water tank—the main hospital supply—trying to defile the water He resisted all efforts to get him down, a free fight ensued, and he fell, again grazing the old broken leg from knee to ankle, but his leg stood the strain well and it made no difference to the plate Another lunatic pierced his abdomen 14 times with a pointed steel file, bending the tip of it against his lumbar vertebræ in his determined efforts to kill himself However, all the 14 wounds in his intestines were sutured, and he made a good recovery But he developed maniacal symptoms again, and was readmitted to the mental block We were sorry at the relapse, because he was skilled at wood carving, and did some exquisite work

Leprosy, Venereal Disease, Influenza

As the war went on leprosy began to manifest itself amongst the Chinese So we had to establish a small leper colony, of which there were a dozen inmates when the Armistice was signed All symptoms of leprosy developed after arrival in France, and the disease was usually observed by M O s who had been familiar with it in China

Our venereal wards were always full and an amazing amount of salvarsan and mercury had to be used

During the influenza epidemic which caused so much havoc amongst European troops, the Chinese were not great sufferers We had special wards for influenza cases It ran very much the same course as amongst the soldiers with the same clinical manifestations We were lucky in having a comparatively small mortality list

Ophthalmic and Surgical Cases

Perhaps the most widely known medical work amongst the Chinese was in connexion with the ophthalmic department Trachoma is a disease very common in North China, and every precaution was taken to prevent its spread in France Every Chinese Labour Corps unit from Calais to Verdun was regularly inspected by our eye specialists This involved an enormous amount of travelling and incessant work The ophthalmic wards were separated by a road from the general hospital, and all these unhappy sufferers were rigidly isolated, one part under canvas for ordinary conjunctivitis, and other wards for trachoma When well enough to work the latter were formed into special trachoma companies, and were not allowed to mix with other labourers At their special depôts they were under constant medical supervision, and were provided with all facilities for carrying out the special treatment for this disease

The surgical cases were many and varied The surgical specialist was much envied by visitors to the hospital, who were invariably surprised at the number, variety, and interest of the surgical cases, and expressed unreservedly their appreciation of the excellence of the surgical work There were six surgical wards of 50 beds each and these were always full This being the "Blighty" base hospital for the Chinese we had a remarkable lot of clean surgical work, as well as a fair share of those wounded by bombs, shells aerial torpedoes, explosions, and accidents

Hospital Nursing

The nursing in the hospital was done entirely by Chinese male nurses and dressers, who had had a certain amount of hospital training in mission hospitals in China and who were brought over from China for this special duty ' There was never a large enough supply of English nurses in France to spare any for the Chinese Hospital and yet the cleanliness of the wards and the good nursing were the subjects of frequent comments by visiting sisters and nurses The hospital garden provided an ample supply of vegetables, and we took seven prizes at the British Exhibition of Agriculture at Abbeville in 1918 The splendid discipline displayed and the fact that Chinese speaking medical officers, who knew and understood the Chinaman, were gathered together for duty at this hospital reflects the greatest credit upon the O C , Lieutenant Colonel G Douglas Gray

Politically it was of the greatest importance that we did well for these 130 000 Chinese in France, for each one passed through the hospital at least twice, if not oftener and their good report may help to cement Anglo Chinese friendship in a country growing in importance every day I would conclude by pointing out what splendid scope there is for British medical education in China to day It ought to be seized by us before any other nation gets in, as the Germans did in Japan, and robs us of a great opportunity

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MOTHER STAYS AT HOME

WE appeal constantly to our readers to help to get for children a temporary sojourn in the country, and in no way can money be better spent than in improvement of health and provision of pleasure With the latter object only in view subscriptions are collected by numberless kindly organisations to provide days in the fields for children The mothers of these children are grateful alike for the happiness of their offspring and for the day's rest which they obtain from the endless moil of poor parenthood But when the strain on the working class mother is recognised—and to medical men it is a familiar circumstance—it is impossible not to see that it is often the mother rather than the child that is in need of the change of air and environment The situation of such a mother was brought home at the Æolian Hall last week, where a mixed programme of vocal and instrumental music and recitation was given by Miss M Foster, Miss M K Snowden and Miss Louise Perceval Clark One of Miss Perceval Clark's recitations set out pathetically, but without mawkishness, the intense longing for the country which may fall upon a mother when thinking of and rejoicing in the delight of one of her children who was starting for a day in the country This situation cannot be wholly met, because while the children can go into the country without their mothers, the mothers cannot go into the country without the children We commend to Miss Perceval Clark who herself writes what she recites, the remedy for this dilemma as a subject for a recitation The continued physical and nervous strain to which the poor mother is subjected is a matter the importance of which has long been clear to the medical profession

BRISTOL BOARD OF GUARDIANS AND A CONSULTING MEDICAL STAFF

THE Bristol board of guardians is advertising for a visiting consultant staff for the Southmead Infirmary, shortly to be opened A medical and surgical specialist will be appointed each at a salary of £100 per annum, also a physician for diseases of children (£50 a year) and another with special qualifications for ear throat, and nose diseases The terms offered to the latter, as also to a dental surgeon, are a retaining fee of £5 per annum and a fee per visit to be arranged later

LIFE IN JAMAICA

To the Editor of THE LANCET

SIR,—As a recent visitor to Jamaica I would strongly advise any medical man who contemplates sending patients there to make careful inquiries before doing so To me it seems that it is no place for an invalid at the present time By the direct route, which is to be avoided the voyage, generally unpleasant in winter, may take from 14 to 23 days, but on arrival at Kingston the traveller may find that there are no rooms to be had, and may have to return in the boat he went out in If he has gone to the expense of engaging rooms by cable he may be told at the hotel that in spite of their cabled promise no rooms have been reserved for him The hotels are for the most part primitive It was stated in a daily paper last winter that prices in Jamaica were low and living cheap Things seem to have changed, for they are nothing of the kind The visitor must make up his mind to rough it and pay heavily for the privilege

I am, Sir, yours faithfully,

Norfolk street, W 1, April 26th, 1920 H G WHARRY

PUBLIC HEALTH IN BRITISH GUIANA, 1918.

THE year 1918 was an unhealthy one in British Guiana, owing to influenza, malaria, and other causes. The total death-rate was 40·6 per 1000, a considerably higher ratio than in any previous year since 1868; the birth-rate, 25·1, was lower than in any year since 1894. The chief cause of increased mortality was the invasion of influenza which appeared in a mild form and over a restricted area in July and August, and again as a widespread epidemic of severe type throughout the colony in November and December. Surgeon-General J. H. Conyers, who presents the report, states that "it is not possible to give the actual deaths from influenza, for many were uncertified, and many certified as pneumonia and bronchitis were probably due to influenza." It is stated in paragraph 183 that the registration district of Mara suffered most "with the extraordinary mortality of 778 per mille." This would certainly be an extraordinary mortality; but there is some mistake, as the deaths from all causes in this district numbered 119 in a population of 3501 (34·0 per 1000), as stated in Table 23. On the Mara sugar estate 112 deaths occurred during January in a population of 539—that is, 207·8 per 1000 for the month.

Enteric fever prevailed in Georgetown and the district of Peter's Hall, as in the previous year. Typhoid and paratyphoid vaccine was supplied by the Bacteriological Department and distributed extensively (20,275 doses in 1917 and 10,372 doses in 1918 for the whole colony), with good results. Ankylostomiasis is being controlled by the erection of latrines and the treatment of all persons found to be infected. There was an increase in malaria (1680 deaths), the ratio (54 per 1000) being higher than in any year since 1911. In the report for 1917 it had been stated that—

> "A special malarial gang is absolutely necessary, constantly at work under the control of one who has had special experience and training in this work in this colony. If these gangs are supplied it would be easy to reduce the malaria deaths and sickness in any community, estates as well as villages, by a third and probably in a few years by two-thirds or three-quarters. This is the proper and only cheap method of preventing this terrible disease. ...... Quinine can never take the place of permanent and thorough drainage, with careful and constant attention to unavoidable water collections."

This is undeniable, and has been an ascertained fact for many years past. At the same time, quinine administered prophylactically has a distinct value. It was found that on the sugar estates, "where more care is taken in the drainage of the 'yards' and quinine is given more regularly, the malaria-rate is much lower than in the adjacent villages."

"CHASTITY BY TERRORISATION."

THE suggestions for the control of venereal disease, issued by the Medical Women's Federation,[1] were printed in full in the *Guy's Hospital Gazette* for Feb. 21st. In the succeeding number of the same journal there appears a spirited criticism of some of these suggestions over the initials "G. H. F. G.," who quotes a sentence in which the fear is expressed that from the use of prophylaxis "a phase of society would be produced as vicious and degenerate as any of which history has record. ...... Moral degeneration and sex excesses would rot the very foundation of society." What were the foundations of society doing, asks "G. H. F. G." before 1493, when syphilis was introduced into Europe? And in rural Ireland, where venereal disease is unknown, do we find a phase of society as vicious and degenerate as any of which history has record? He finds in their arguments a "policy of chastity by terrorisation," and claims that no real moral advance can be made along such lines. As regards the practical efficacy of prophylaxis, the writer quotes the experience of a flotilla in the Eastern Mediterranean, in which the method was strikingly successful. He points out that the men had every incentive to preserve themselves from infection—an important condition, and one not always obtained in the army.

For our part we do not find "G. H. F. G.'s" comparison of two different epochs very helpful. The greater freedom of action now enjoyed by girls of the enormous middle-class, which did not then even exist, and the increased knowledge of methods to prevent conception, have altered social life to an extent which makes the comparison futile. The real difference between the two standpoints rests on opposing premises. "G. H. F. G." interprets certain evidence as a proof that properly organised packet systems are efficacious, whereas the Women's Federation pin their faith to statements from equally reliable authorities asserting the reverse. The Federation expressly disclaims the view attributed to them—namely, the advocacy of retaining disease as a deterrent from promiscuous indulgence. Their point is rather that the official issue of packets would encourage a false sense of security, leading to increased indulgence, and therefore to increased disease. The problem of whether the use of prophylactic packets, if proved effective, is to be condemned has apparently not been considered by the Federation of Medical Women.

THE MATRIARCHAL FAMILY IN FRANCE.

THE grave question of depopulation in France that has already been frequently discussed in the French medical press, and was the subject of an annotation in THE LANCET of April 3rd (p. 779), is taken up again by Dr. Paul Carnot in the *Paris Médical* of April 17th. After pointing out that in 20 years' time the French race will be swept out of existence if French women do not make what he calls a superhuman effort of maternity, M. Carnot very frankly states the actual conditions and their possible remedy. There are now in France 2,000,000 unmarried women capable of bearing children and deprived of husbands by the war. To take the place of the men who have been killed there are two alternatives: (1) to marry French women to foreigners—a solution that seems to M. Carnot very dubious, and one which has had, so far, no encouragement from the authorities, although it is the only way in which it is possible to secure legal husbands for French women; (2) to permit polygamy during a certain period—a solution that no one wants, and which would be probably useless, as men already find it difficult enough to support one woman, and restrict their families on that account.

Before suggesting the only alternative he sees, M. Carnot quotes some Danish statistics to prove that in Europe there are now 15,000,000 more women than men, a figure that he thinks shows the necessity for a matriarcal family composed only of mothers and children, of which he reminds his readers that many civilisations have given examples. This matriarchal family would only be possible if it were State-supported, and basing his argument on the fact that the supreme law of a race is not to perish, M. Carnot strengthens his defence by the axiom that in a well-organised society maternity ought to be a woman's career, since, socially speaking, every woman ought to become a mother. This career for women has never been properly organised, but should be both honoured and recompensed, and the day when maternity is made a remunerative career many women will have children who now hesitate before the expense of bringing them up, and the uncertainty of the future.

Finally, M. Carnot believes that if it were not for the opposition of public opinion many women would be glad to satisfy their maternal instinct and become the mothers of children, who would be their companions in old age. If this be true the question is largely one of public opinion and economics. Before asking a woman to bear children her future and theirs must be assured by the State. To provide funds the people who have not fulfilled their social duties to the State should be obliged to leave their money to support the children of those who have.

PLURAL BIRTHS IN THREE GENERATIONS.

To the Editor of THE LANCET.

SIR,—On April 16th I attended Mrs. E. P. in her confinement with twins. Her sister in three confinements had twins each time. Her mother had triplets and her grandmother also. It is not often, I think, that twins and triplets occur in three generations.

I am, Sir, yours faithfully,

Bristol, April 20th, 1920. THEODORE MARTIN.

HOME HELPS.

To the Editor of THE LANCET.

SIR,—I read with interest your annotation in THE LANCET of April 10th on this subject. We have established here a service of home helps, although the difficulty in obtaining satisfactory women is very great. It must, I think, be admitted that the home help who would satisfy every mother to whose house she is sent would, indeed, be a very extraordinary person. We have temporary home helps who are paid 3*s.* a day and their food when they are acting for us. From the ranks of these the most satisfactory are sent for a course of training to a hostel for illegitimate babies. They stay there six weeks and we pay for their maintenance whilst they are being trained. Before they are sent for training they sign an undertaking to remain in our service for 12 months after its completion. They are then taken on the permanent staff and are paid 3*s.* a day with food when employed as home helps, and 1*s.* 6*d.* a day on the rare occasions when we have no work for them. During this period they can obtain other work should they desire, subject to their responding to a call within 12 hours. The mothers, to whose homes they are sent, make a contribution towards the cost, in many cases paying it all, and most of them are very grateful indeed for the assistance which we can render to them.

I am, Sir, yours faithfully,

W. ALLEN DALEY,

April 19th, 1920. Medical Officer of Health, Borough of Bootle.

W. H. K.—The admirable suggestion is in harmony with all that we have been saying for years past.

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[1] THE LANCET, Feb. 14th, 1920, p. 3

A Lecture

ON

THE SURGICAL TREATMENT OF PROLAPSE OF THE UTERUS AND VAGINA.

Delivered at the Royal Society of Medicine on May 5th, 1920,

BY W BLAIR BELL, B S, M D. LOND, &C,
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INTRODUCTION

IT is somewhat surprising that, when so much is being said and written about the care of the pregnant women and the safe conduct of parturition, so little attention has been directed at the same time—publicly, at any rate—to the prophylaxis and treatment of prolapse, a gynæcological condition which is almost invariably a sequel of parturition, and which is so common that Fothergill has stated that "plastic vaginal work thus forms, roughly, a fourth part of the whole operative work done" (at St Mary's Hospital, Manchester) Moreover, the condition is so disabling that a large proportion of those women who suffer with prolapse of the uterus and vagina are physically incapable of performing their household duties Yet the subject has not been neglected by gynæcologists, many of whom have gone down to posterity with their names appended to pessaries, indeed, at the present time there is probably no subject in gynæcological surgery to which gynæcologists have given more consideration than to the surgical treatment of prolapse. I shall not attempt to dogmatise, as so many have done, for I hope to show that the question is one that requires the exercise of judgment, and that the constantly recurring assertion, "the one and only way to cure prolapse," should represent at best only a method of choice in certain given circumstances It is the attitude, adopted by so many who assert that some particular method as practised by them is the best, the only, way to cure prolapse, that has led to the diversity of opinions and methods now set forth, and, I regret to add, to the disappointment of many a patient

The fact that a number of cases on which I have myself operated had previously been subjected—once, twice, up to five times—to the procedures advocated by the surgeons performing the operations, makes me feel somewhat reticent about the methods I practise perhaps some may know of failures of mine In this case, I hope to be informed, that I may benefit by the experience, if I have not already done so We learn only by our failures, and, lacking these, by the failures of others. Having said this, I hope I may be forgiven for illustrating (Figs 1 and 2) two of many of the post operative failures that have come under my notice I may say that the operators concerned are gynæcologists of repute who are interested in the subject, and that the cases illustrated have come under my care during the last two years—facts which will, I think, lend force to my statements, and prove convincingly that neither in opinion nor practice have we reached finality.

Nevertheless, whatever real (I shall explain what I mean by "real" later) failures there may be following my own operations—and, unfortunately, perhaps, I do not known of any—and the procedures of others, I believe that to day it is possible practically to guarantee the cure of any prolapse whatsoever, not by one method, but rather by the method or combination of methods suitable to each particular case I do not deny, however, that many cases can be cured by almost any method, and it is this very fact that blinds those who are satisfied with less than 99 per cent of cures

I am only concerned here with the surgical treatment of prolapse of the uterus and vagina, but it goes without saying that much can be accomplished in the way of prophylaxis, and that all surgical procedures are based on a correct appreciation of the normal anatomical conditions and on the lesions present in prolapse The operations practised should aim at a correction of the lesion or lesions, or at the best possible compromise; and as the lesions vary with a corresponding variation in the clinical picture, the procedures must vary accordingly Hence, it is that no one operation meets all the requirements in regard to surgical treatment of every case

The total number of cases of prolapse on which I have operated is not large, approximately 400 in all, with (so far as I know the cases are being investigated at present) 99 per cent of cures, and a mortality of 2, or 0 5 per cent The operative treatment adopted was only indirectly concerned with these two deaths, as I shall show presently

CLINICAL TYPES OF PROLAPSE.

The following states, which may be encountered in varying degrees of severity, present themselves for consideration —

A. So called "congenital" prolapse

B Puerperal retroversion and flexion, with slight actual, or with potential, descent

C. Vaginal prolapse

D. Prolapse of the uterus and vagina (1) during the reproductive period, (2) after the reproductive period

In discussing the procedures which, in my opinion, should be practised in the different states recorded above, I shall describe my present practice which has naturally been more or less gradually evolved, although long ago it had reached a state of comparative stability.

"Congenital" Prolapse

It must be mentioned that what is usually called ' congenital" prolapse is not the condition sometimes seen in infants with spina bifida, but the prolapse that occurs soon after puberty, and is no doubt primarily due to inherent defects in the pelvic floor I think there can be no doubt that this condition in its advanced stage is usually considered to be the most difficult of all forms of prolapse to treat effectually It is not common and must of course be distinguished from congenital hypertrophy of the vaginal cervix I have only treated some half dozen cases of these so called "congenital" prolapses Two of the cases on which I have operated had previously been submitted to operation One had had colporrhaphies and perineorrhaphies performed on two occasions, and the other case had actually undergone five operations, four times plastic vaginal work had been done, and last of all ventrisuspension (peritoneal adhesion) had been tried

In Fig 1 the result of these five operations a few months later is shown I had this photograph taken simply and solely because the surgeon who had performed these five operations has very strong opinions about the cure of prolapse Moreover, it is instructive, in that it shows plainly—as did the other case of a similar nature—that no surgeon, however skilful with his particular methods of plastic work on the vagina he may be, can cure these cases of congenital procidentia by such work alone nor will superadded ventrisuspension help in the cure This patient has now been cured at one sitting by what I consider to be the correct procedures First, effective plastic work on the vagina was performed, together with amputation of the cervix Next, the abdomen was opened and a string like band some 6 inches in length, representing the remains of the peritoneal fixation, was excised The posterior segment of the peritoneal aspect of the pelvic floor was then reconstructed—an essential procedure—and the uterus was suspended by means of a modified Gilliam's operation The result has been perfect.

I shall deal with the technique of all these procedures later

In the other case, on which two vaginal operations had been performed on two occasions by another gynæcologist, I was able to cure at one sitting the "congenital" procidentia by almost similar procedures, and, when examined recently, after an interval of 12 years the result was found to be so good that it would be impossible if it were not for the slight laparotomy scar, for anyone to know that an operation had been performed, or that the woman had ever been other than normal She has never married, so the test of child bearing has not occurred

Puerperal Retroflexion

I believe that puerperal retroflexion is in the first stage of a large majority of all cases of acquired prolapse of the uterus, and should be treated as such In those cases in which the vagina is not stretched or torn a timely operation to cure the condition will save much operative work in the future. I have described elsewhere[1] the non-operative treatment of those cases of puerperal retroversion that are discovered during the puerperium. Unfortunately they are frequently overlooked, and at a later date operative treatment alone will effect a cure. If there be vaginal laceration this, of course, must receive attention; but when the retroflexion is the only important lesion—and it may be associated, when discovered, with slight descent—it is sufficient to perform a modified Gilliam's operation alone. I find I have carried out this procedure 135 times in this class of case with excellent results and no mortality. It must be remembered, nevertheless, that in subsequent labours vaginal laceration may occur and necessitate further operative treatment; but, provided this is not too long delayed and a vaginal prolapse has not stretched the supravaginal cervix, the uterus will always, no matter how many may be the subsequent labours, maintain the good position that results from a properly performed modified Gilliam's operation.

Vaginal Prolapse.

As has been so well emphasised by Fothergill, but overlooked by many, it is possible to have vaginal prolapse in association with a normally-placed uterus. In most cases the vaginal prolapse is represented by a large cystocele, more rarely by a rectocele, and still more rarely by a cystocele and rectocele. It must not be forgotten, however, that it is practically impossible for a vaginal prolapse to exist indefinitely without the supravaginal cervix being stretched, and prolapse of the uterus being produced, unless there be pelvic infection or some other pathological cause preventing the descent of the vaginal fornices.

If there be prolapse of the vagina alone, it is obvious that only plastic operations on the vagina will be required.

I find that I have carried out vaginal repair alone only in 16 cases; and, as in over half of these cases operations, including Gilliam's operation and ventrifixation, had been previously performed by other surgeons, and as in three it was necessary to perform vaginal hysterectomy, it will be seen there were but few uncomplicated cases in which I considered vaginal repair alone to be justifiable. Moreover, in 20 other cases vaginal repair was associated with laparotomy for the treatment of other lesions, such as fibromyomata of the uterus and pelvic infections.

It will be obvious from these statements how rarely I have felt justified in resorting to colporrhaphies and perineorrhaphies alone, in order to cure prolapse; in other words, how comparatively rare is purely vaginal prolapse. Yet, the Manchester School asserts that it is possible to cure every case of prolapse by means of plastic vaginal work. As I shall demonstrate directly, my method of plastic vaginal work is probably more efficient than the usual procedures practised, but I am certain that it is impossible to obtain good results by vaginal plastic work alone, however good, in bad cases of prolapse. Moreover, even if one had not the evidence of facts, such contradictory statements as the following would shake one's faith in the methods advocated: "If the patient were to come back a year after operation (that is, after plastic vaginal work) with a retroverted uterus, backache, pain in the side, or dyspareunia due to prolapsed ovaries, it would no doubt be proper to open the abdomen and sling the uterus in anteversion by a Webster's or a Gilliam's operation. But this would be operating for retroversion, not for prolapse"[2]; and, in discussing "Classical Prolapse. Prolapsus Uteri, Stage 1," a few pages earlier: "Thus, when the patient strains there is not only cystocele, but also retroversion."[3] Readers must draw their own conclusions; but it seems to me that if retroversion be stated to be, as indeed it is, present as a feature in the first stage of uterine prolapse, the other statement which I have quoted above regarding treatment is more than illogical. However, to come down once more to facts: Fig. 2 is a photograph of a patient who had "classical prolapse"—procidentia. Twice plastic operations on the vagina were carried out, and last of all ventrifixation had been performed. This patient is now under treatment, and I hope she will be cured.

Nevertheless, as already stated, vaginal prolapse alone with an anteflexed uterus may occur, but it is rarer than might be supposed, because the ultimate result of vaginal prolapse is to produce uterine prolapse. When, however, the patient is seen with vaginal prolapse alone—cystocele or rectocele or both together—then properly performed plastic vaginal work is all that is required to effect a cure.

Prolapse of the Uterus and Vagina.

This state may exist in all degrees; there may be slight descent of both uterus and vagina; the vagina may be badly prolapsed and the uterus but slightly; the uterus may be much prolapsed and the vagina but a little; or the uterus and vagina may be completely prolapsed—procidentia. Now the treatment of these conditions—and we may include the so-called "congenital" prolapse to which reference has already been made, for the treatment is much the same—would be easy and hardly worth discussing if vaginal plastic work was all that was necessary to effect a cure. I have shown two instances out of not a few that have come under my care, in which plastic work on the vagina performed by two different operators failed to cure, and in which even the last resort of a baffled mind—ventrifixation—also failed to relieve in either case.

I have performed this combination of vaginal repair with ventrifixation myself—once, and once only—and that many years ago. I believe the result in that case was satisfactory, but even then I was not convinced that it was the right treatment. It was one of those cases that almost any method will cure. The evidence of some 20 to 30 cases in which I have operated after others had performed ventrifixation has convinced me that, allowing for perfect technique on the part of the operator, the operation is a thoroughly bad one. I have discovered bands many inches in length and of the same thickness as that of string; I have found a uterus free and completely prolapsed, with no adhesions at all; I have had to perform vaginal hysterectomy, and in two cases during the procedure to dig a uterus firmly adherent to the anterior abdominal parietes out of a mass of intestinal adhesions. In one of these cases the uterus measured internally no less than 6½ inches. The cervix presented at the vaginal orifice and the vagina was badly prolapsed. Fig. 3 is a photograph of this interesting specimen. This patient, I am sorry to say, died of peritonitis, probably owing to some bowel being partially stripped of its muscular coat during the separation of the adhesions. But this death must really be attributed to the imperfect procedures previously practised—procedures which not only failed to relieve the patient of the condition from which she was suffering, but even caused serious intestinal complications.

What operations, then, should be performed in these cases? It seems to me that there are really only two classes into which we can divide cases of prolapse of the uterus and vagina in regard to surgical treatment: (*a*) prolapse during the reproductive period; (*b*) prolapse after or about the menopause.

Prolapse of the Vagina and Uterus Before the Menopause.

In prolapse of the vagina and uterus before the menopause, and included in this category are the cases of so-called "congenital" prolapse, we must perform procedures compatible with subsequent parturition. Any operation that is incompatible must be ruled out of court.

For this reason the "interposition" operation, to be mentioned directly, must not be performed during the ordinary reproductive period; nor should ventrifixation be a procedure practised, as many difficulties and accidents have occurred during parturition after this operation. In connexion with this procedure it may be instructive to record the case of a young lady who consulted me a few months ago. She had been subjected to operation by a gynæcologist who had indulged in some ineffective plastic operation on the vagina and performed ventrifixation. He then told her that, owing to this operation, she must never become pregnant again, but in spite of this warning she conceived. It seems hardly credible that, on being consulted about the matter, the surgeon advised, and carried out, evacuation of the uterus! Such a case requires no comment, but I feel I should be lacking in scientific duty if I were to suppress such facts.

Peritoneal ventrisuspension is a useless operation; either the adhesion disappears or a long, narrow, dangerous band is produced, which, of course, is of no use for supporting the uterus subsequently.

What, then, can we do with safety and efficiency for the cases in question? We must repair the vagina and perineum, amputate or repair the vaginal cervix if necessary, and suspend the uterus by a modified Gilliam's operation. In bad prolapse—procidentia and especially in so-called "congenital" prolapse—we must also repair, or, rather, reconstruct, the peritoneal aspect of the posterior segment of the floor of the pelvis. I have performed 178 such combined operations with one death, due to a gauze pack, which I then used, being left by mistake in the vagina for ten days by the sister in charge. The patient eventually died of sepsis.

It is, of course, possible that the repaired vagina and perineum may suffer injury in subsequent confinements, but this is by no means invariable. I remember one woman, well under 30 years of age, on whom I operated for procidentia following her first confinement. Subsequently she had six children. She was confined in hospital with the first two following the operation, and she suffered no damage. Other confinements took place in her home, and when she came to see me about a year ago she was pregnant, and there was appreciable bulging of the vagina, with laceration of the perineum. She then had a difficult labour, and one of my colleagues delivered her—a very small woman—of a child weighing over 11 lb. with forceps. She was rather badly torn. After a few months I repaired the vagina and perineum. The uterus was still in a normal position.

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[1] The Principles of Gynæcology, 1919, third edition, p. 195 et seq.
[2] Fothergill, W. E.: New System of Gynæcology, 1917, ii., 657.
[3] Fothergill, W. E.: New System of Gynæcology, 1917, ii., 628.

One cannot, of course, look upon such a case as a failure. The original procedure cured her, and, indeed, survived the test of subsequent labours. But, as in a first confinement the vagina and perineum may be torn, so also may an effective vaginal repair suffer damage in subsequent labours. Such cases cannot be considered operative failures. In the cases I have illustrated in this paper, and in those which I have *considered* failures when they have come under observation after having previously had operations performed upon them, no conception had occurred subsequently to the operation that had not proved successful.

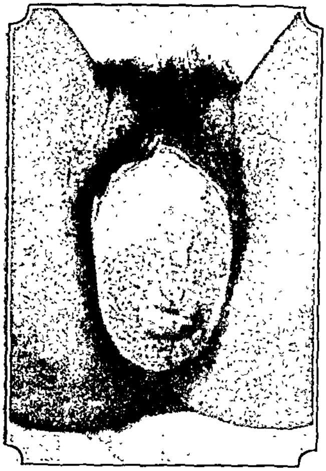

FIG. 1.—Complete procidentia in a case of "congenital" prolapse, subsequently to five operations. A scar can be seen on the anterior vaginal wall.

Prolapse of Vagina and Uterus at or after the Menopause.

In patients past the reproductive period—and by that I mean in women who have passed the menopause or who, having had children many years previously, are within a few years of the menopause—one is not limited by considerations of subsequent pregnancy. In these circumstances I seldom now open the abdomen. A majority of the cases are bad ones—that is to say, procidentia is often seen and the vagina may be ulcerated. After suitable preparation, if there is *no* descent of the uterus, vaginal repair alone, as we have seen, may be carried out; but when there is *any* degree of descent, and especially in the presence of a cystocele—*extremely common in* this class of case—I believe there is no operation to compare with the interposition operation, together with properly performed colporrhaphies, anterior and posterior, and perineorrhaphy.

In a few exceptional cases—I have one under my care at the moment, not included in my figures—it may be necessary also to open the *abdomen to reconstruct* the posterior segment floor of the pelvis from above.

I have performed the interposition operation with colporrhaphies and perineorrhaphies 42 times up to the date at which my figures have been collected. I have had no deaths or untoward symptoms, except in one case, in which frequency of micturition was caused by *insufficient separation of the bladder*—a state of affairs which was subsequently easily rectified through a laparotomy incision.

Surely, if there were any inherent and unavoidable reason why these *operations* for interposition of the uterus should eventuate in such terrible results as have been depicted, I could not have failed to have encountered it in some fifty or more experiences. My cases have almost invariably made a smooth recovery. In only three has there been any trouble, and in two this was in connexion with the perineum, and was of quite a minor character; in the other, in which the patient was found to have a recently-contracted *gonorrhœal infection of the tubes—a lesion dealt with at the operation—there was a somewhat* purulent vaginal discharge; this, however, did not interfere with the perfect operation-result obtained.

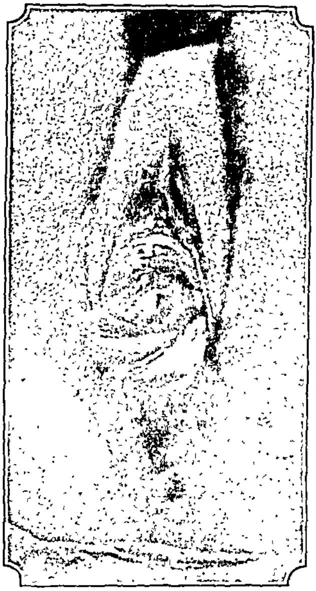

FIG. 2.—Prolapse of the uterus and vagina *subsequent to three operations.*

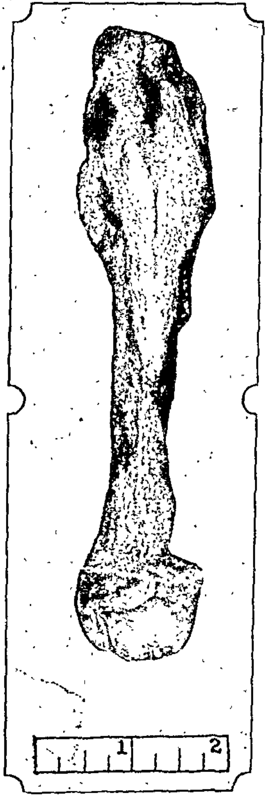

FIG. 3.—Greatly elongated uterus in case of prolapse subsequently to fixation and vaginal repair.

Schauta, to whom the introduction of this operation is attributed, lost five cases in 89 operations, and in 13 cases there were recurrences. Fothergill,[4] *commenting on these* figures, justly remarks that "no results could be much worse than these." Bissell has reported an almost incredible mor*tality of 75 per* cent., while Vineburg[5] states that "I abandoned it (interposition operation) myself on account of the extensive suppuration usually accompanying it."

Such a record is undoubtedly appalling, but so was the record of the first ovariotomies. The awful results reported in *regard to the interposition operation* have been due to the same cause as that which threw such a lurid light on the early ovariotomies—sepsis!

Of course, if simple plastic work on the vagina cured all cases of prolapse *there* would be no need to do more. But I firmly deny that it does so, and I have *adduced pictorial evidence in support of* my denial—evidence to which I can add if necessary. I know that such *measures* are ineffective except in the instances specified, even in the hands of *those* who advocate them. This being the case, what is to be done? I maintain that the interposition operation, if it can be done safely and *effectually—as it can—in conjunction* with colporrhaphies and perineorrhaphies, should be the method of choice after the *menopause.* Fifty deaths and no recurrences with smooth recoveries and perfect ultimate *comfort* to the patient is convincing to me. But, of course, if it cannot be done safely, *it should not be attempted.*

OPERATIVE PROCEDURES FOR PROLAPSE.

Abdominal Operations.

With regard to the operative procedures for the cure of prolapse we have seen that when there is a puerperal *retroflexion of the* uterus with slight or potential descent, but without vaginal laceration, a *properly* performed modified Gilliam's operation meets the case; indeed, the operation *must* in these circumstances be regarded as valuable prophylactic treatment against further prolapse, apart from the relief afforded to the symptoms connected with the condition so treated.

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[4] Fothergill, W. E., *New System of Gynæcology*, 1917, ii., 654.

[5] *Vineburg, H. N., Amer. Journ. Obstet.* and Gynecol., 1919, lxxix., 677.

Modified Gilliam's operation.—I have described my modification of this operation, and have illustrated the different steps of the procedure in the third edition of my Principles of Gynæcology. This is, in my opinion, the only satisfactory method of suspension of the uterus, whether it be practised alone or in conjunction with plastic work on the vagina. I think the chief reasons why it is so satisfactory are that it is mechanically efficient, and that if pregnancy occurs subsequently the round ligaments hypertrophy, as always in this physiological state, and undergo involution afterwards. This sequence of events is, of course, in great contrast with what occurs after peritoneal ventrisuspension and ventrifixation in connexion with subsequent pregnancy. Apart from the other disadvantages of these two methods, pregnancy in the first case leads to stretching of the peritoneal adhesion, which is subsequently useless so far as support of the uterus is concerned, while ventrifixation prevents the proper development of the pregnant uterus and is a danger in parturition.

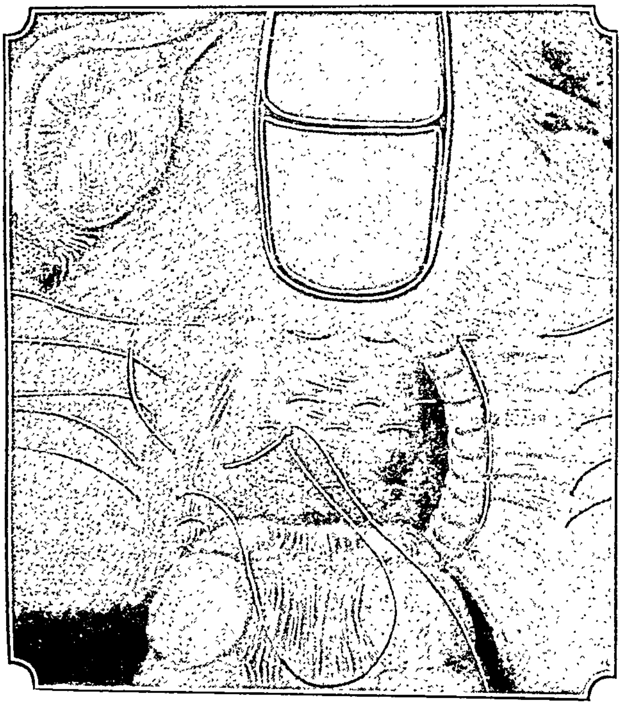

FIG. 4.—Early stages of author's method of reconstructing posterior segment of pelvic floor.

Reconstruction of posterior segment of pelvic floor.—The other intra-abdominal procedure for the relief of prolapse that I have mentioned is the reconstruction of the posterior segment of the peritoneal aspect of the pelvic floor.

For some time I contented myself with reconstruction of the utero-sacral ligaments. These so-called ligaments contain involuntary muscle-fibres which, like those of the round ligaments, are directly continuous with the external muscle-coat of the uterus; they form, too, the posterior part of the antero-posterior sling of muscle-fibres attached to the back and front of the supravaginal cervix, which stretches from the sacrum to the symphysis, being continued in front of the uterus between the base of the bladder and the anterior vaginal walls. We shall see directly that the anterior portion must also receive attention from the operator in cases of prolapse. I have depicted in my work on Gynæcology, just mentioned, a method which I have employed in the reconstruction of the utero-sacral ligaments. It will be seen at once how great is the support that such reconstruction gives to the uterus, and that there is retraction of the cervix, into the posterior segment of the pelvis. I was led to undertake reconstruction of the utero-sacral ligaments because I found that even after vaginal repair and the suspension of the uterus by means of a modified Gilliam's operation, the patient, when the prolapse had been a bad one, subsequently suffered with bladder irritability owing to the cervix swinging forward and nipping, as it were, the bladder between the uterus and the back of the symphysis. I rarely practise simple reconstruction of the utero-sacral ligaments now, for although the cervix is kept back by this procedure, there is still left a deep pouch—the pouch of Douglas—which forms a hernia sac in these circumstances. I look upon any success I may have had in the cure of "congenital" procidentia as largely due to the obliteration of the enormously deep and extensive pouch of Douglas present in these cases, together with reconstruction of the utero-sacral ligaments and the other procedures employed in conjunction with the reconstruction of the posterior segment of the pelvic floor. The obliteration of the pouch of Douglas is effected with silk sutures which run in and out through the peritoneum transversely across the pouch of Douglas and pass behind the reconstructed utero-sacral ligaments to terminate on either side above them (Fig. 4). The ends are subsequently tied, so as to bring the utero-sacral ligaments together in the middle line (Fig. 5). In this way a solid floor is made running from the base of the broad ligaments on either side across the back of the cervix and around the sacral arch, leaving room only for the rectum to pass through. The rectum should be fixed with one or two sutures to the edges of the aperture in this new part of the pelvic floor through which it passes. Anyone who has not seen and actually felt the wonderful support thus afforded by what previously had been the weakest part of the pelvic floor can hardly appreciate from this brief description the effect produced.

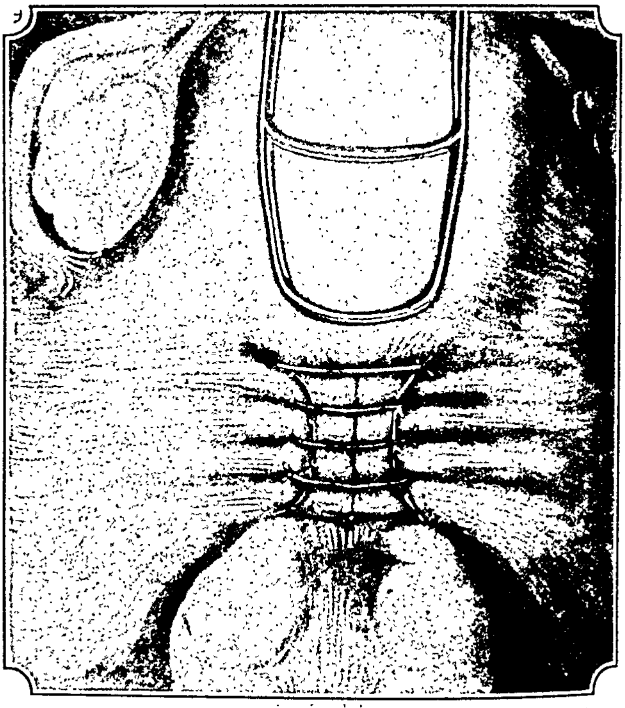

FIG. 5.—Final stages of author's method of reconstruction of posterior segment of pelvic floor.

Vaginal Operations.

Preparation of the vagina.—With regard to vaginal procedures, the first important point is the question of the preparation of the parts concerned for operation. I need hardly say that failure to secure good results is due to sepsis, which seems to have been the chief cause of disaster in connexion with the interposition operation. It must be obvious to anyone that a prolapse, which causes exposure of the cervix and vaginal walls to the ordinary infections of the skin surface, requires special preparation before operative procedures are undertaken. No one to-day would venture to operate on a case in which there was vaginal or cervical ulceration from friction. The patient, in these circumstances, would always be put to bed and the vagina douched and lightly packed to secure healing. In non-ulcerative cases the usual practice appears to be to give a few douches—supposedly antiseptic—before operation. But I doubt whether any method other than that I am about to describe will sterilise the vagina. I have come to the conclusion that douching the vagina with a view to cleansing is not only inefficient but positively harmful. The lactic acid normally found there is washed away, and the weak antiseptic solutions used for douching do not form an effective substitute. The ineffectiveness of douching, of course, is partly due to the fact that only recently have we become possessed of an antiseptic of adequate bactericidal power, which will not at the same time poison the subject. We know well that mercury products are extremely dangerous, and that women have been poisoned simply by their absorption from the vagina; the same remark applies to the other antiseptics of real potency in strong solutions, with the exception of those that have found favour during the war. I have had no experience of the aniline dyes. I have used a strong hyperchlorite solution, and the most convenient of these is Milton fluid, now widely sold for various domestic purposes This fluid is a powerful hypertonic saline solution which contains 10 g of available chlorine to the litre But even with such an excellent solution which should be diluted to a strength of 1-10 to 1-30 with water, I do not think that douching would be really effectual we must remember that the vagina is full of crevices and that the fluid introduced in this way will not penetrate to all parts For this reason I now have the vagina packed tightly with gauze soaked in a solution of Milton fluid, and the pack is changed every 12 hours for several days before the operation By packing the vagina in this way we open out all the creases, and the solution, with which the gauze is saturated, is able to reach every part The importance of this procedure is very great, and I think that its adoption will help those who have had serious suppuration in the past—suppuration which I venture to think, has too often occurred after operation on those cases in which the vaginal walls and cervix have protruded from the vaginal orifice

Plastic vaginal operations —I have little to say here in regard to vaginal repair—that is to say, anterior and posterior colporrhaphy and perineorrhaphy—for the procedures are fully described in my text book on Gynæcology The essential points, however that I wish to emphasise are first, that the mere removal of a portion of the vaginal mucosa and the bringing together of the cut edges is, as I first showed in 1911[6] not good technique The vaginal walls, together with the underlying muscle fibres—in the case of the anterior vaginal wall the fibres concerned are largely those already described as forming the anterior part of the antero posterior pelvic sling—must be completely and widely separated from the base of the bladder in front and from the rectum behind The bladder wall and the wall of the rectum will then lie smoothly spread out beneath the scar rather than act as a potential hernia sac I believe, too, that my method of suturing the flaps composed of mucosa and muscle by means of a combined mattress and over stitch to bring large surfaces of the muscle and the edges of the mucosa together, thus forming a buttress throughout the length of the vaginal walls in front and behind, constitutes a most efficient method of forming plastic work on the vagina (Fig 6) I am glad to say that from time to time, I receive communications which inform me that operators are finding this the most satisfactory method of performing the vaginal procedures

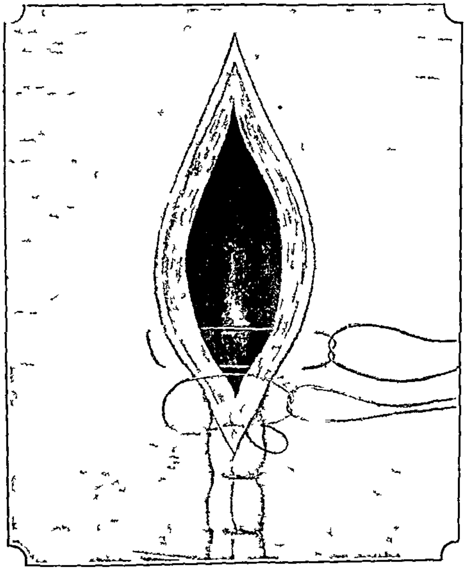

FIG 6—Author's mattress and overstitch for vaginal suture The overstitch may be taken through more than once if desired

I may, perhaps, be allowed therefore, to call special attention to this mattress and combined edge to edge sutures which I devised not only for suturing the vagina, but also for other conditions, such as for closing the uterine wound in Cæsarean section, after enucleation of fibroids excision of a portion of the uterus, and so on I think that those who try it will find it a useful detail of technique

The interposition operation —Next, I must briefly mention the interposition operation This procedure implies the fixation of the body of the uterus between the base of the bladder and the anterior vaginal wall with the underlying muscle fibres After the vaginal flaps have been stripped back from the base of the bladder and the cervix amputated the uterovesical pouch of the peritoneum is incised and the fundus of the uterus is delivered If it is too large, as is usually the case if the patient is not some years past the menopause, a large transverse wedge shaped piece of the fundus is excised together with the uterine ends of the tubes—an important detail if the patient although about at the menopause be still menstruating The V shaped opening is closed and the uterus placed in position behind the vaginal flaps Three sutures are then passed through the anterior surface of the uterus—the last should pass through the supravaginal cervix —and through the vaginal flaps as far out as possible on either side Anterior colporrhaphy is then performed and the sutures passing through the vaginal wall of the uterus are tied Posterior colporrhaphy and perineorrhaphy complete the operation

Post operative treatment of vagina —Equally as important as the preparatory local treatment in all cases in which plastic work on the vagina is performed is the post operative treatment Many trust to keeping the bowels confined for a week and to preserving dryness of the vulva both important details But what are we to do if blood collects in the vagina and decomposes? Formerly I employed for 24 hours a wick, or small pack, of ribbon gauze to collect the blood, which adhered to the gauze and was withdrawn with it, but I found that subsequent oozing not infrequently occurred Lavage of the vagina in the first few days after operation is a procedure which not infrequently especially in the hands of nurses leads to injury of the parts I have therefore been driven to devise a method of draining the vagina and of allowing it to be irrigated I use a double tube (Fig 7), which is placed in the vagina at the end of the operation and kept in position by means of sutures—one to each arm of the double tube, fixing it to the vaginal orifice It will be seen that in one arm there are no holes but that there is a slit like orifice at the end which will lie at the top of the vagina and that the other arm is perforated and has a large aperture at the end Irrigation with a solution of the Milton fluid is practised daily for four or more days This is effected by means of a funnel and tube attached by a glass junction to the longer arm which is always the one not perforated The solution is thus carried to the top of the vagina where it escapes from the slit like opening and irrigates the whole passage escaping eventually from the distal end of the shorter perforated arm This double tube has been of incalculable value to me It may, of course be employed elsewhere than in the vagina[7] The fact that almost every case in which plastic work only or an interposition of the uterus together with plastic work on the vagina has been performed has made an uninterrupted recovery, convinces me that the methods employed for purifying and draining the vagina have largely solved the outstanding questions concerning the dangers and disappointments which have undoubtedly followed extensive vaginal procedures for prolapse

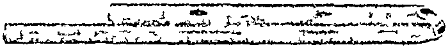

FIG 7—Author's double tube for vaginal irrigation and drainage

Finally, I must add that it is useless to attempt plastic vaginal work unless it is possible to have the assistance of skilful nurses to whom I believe I have been largely indebted for the success of my cases

CONCLUSIONS

1 Operative treatment for prolapse is safe and effectual if satisfactory preparation and after treatment be adopted in conjunction with proper operative technique

2 No one procedure is suitable or satisfactory for every type of case

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[6] Bell W Blair Journ Obstet and Gynæcol Brit Emp 1911 vol xix p 519

[7] Since this article has been in the press I have seen a similar tube described in an American journal as Blake's tube I have used the tube for several years

THE PELLAGRA OUTBREAK IN EGYPT.

II.—PELLAGRA AMONGST GERMAN PRISONERS OF WAR: OBSERVATIONS UPON THE FOOD FACTOR IN THE DISEASE.

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A GLANCE at the illustrations which accompany this article will suffice to convince the most sceptical observer that I have made no mistake in diagnosis. I therefore do not propose to give a general account of pellagra, the symptoms of which are familiar to all interested in the subject. I may claim to have had an exceptional opportunity of becoming intimately acquainted with this disease. During my three years' association with the Prisoners of War Hospital in Egypt, I saw about two thousand clinical cases of this disease, and assisted or actually performed autopsies on nearly three hundred.

Though pellagra was common from 1916 onwards amongst the Turkish prisoners of war, the most outstanding occurrence, as shedding some light upon the ætiology of the disease, was the outbreak which I am about to describe amongst the German prisoners.

I have traced the various theories hitherto advanced up to the point where they break down, and there, for the moment at least, I must leave them.

Theories of Ætiology.

The literature of the ætiology of pellagra is voluminous, and for a detailed description thereof reference must be made to the many published works on the subject. I shall, however, briefly allude to, and discuss, the more current and popular theories. I am convinced that the disease is neither infectious nor contagious in the ordinary sense of the word. During the three years that I have been dealing with some thousands of pellagrins I have been struck by the fact that all the orderlies, including our own men, and Turks or Germans, in attendance on the patients, remained free from the disease. The character of the blood picture, the type of the temperature, and the post-mortem changes in the central nervous system, as revealed by Singer and Pollock, are evidence against the infective theory. Wilson, also, as a result of his investigations into the pathology of the disease, concludes that whatever the causation, it is not parasitic, but toxic. The theory of Alessandrini that pellagra is due to imbibing colloidal silica in water is so improbable that I need scarcely mention it. At all events, it is well known that the British troops never suffered from pellagra, though they drank the same silicious Nile water as the Egyptians, amongst whom the disease is widespread.

The theory proposed by Sambon that pellagra is due to a protozoon and is conveyed by a biting fly (*Simulium*), I have never found any reasons for believing, though superficially it is a very plausible one, and it has moreover attracted many adherents, among others, Stannus, who has studied pellagra extensively in Nyasaland. In support of the protozoal nature of the disease Sambon has advanced the mononuclear increase in the blood, the chronic course, the beneficial effects of arsenical treatment, and the rural distribution of the disease.

Personally I have never found an increase in the mononuclears in the blood of an uncomplicated case of pellagra, and other observers have confirmed this negative finding; but, as malaria occurs frequently in association with pellagra, it is quite evident that in these complicated cases an increase in mononuclear cells would and does occur. In its inorganic and organic forms I have used arsenic extensively in treatment and could not convince myself that it possesses any value even in alleviating the symptoms. In fact, my experience inclines me to think that it should be contra-indicated in the acute stages as being distinctly harmful. As regards the disease being confined merely to country dwellers, I can enumerate many cases who had resided in a large town for a long period prior to developing the well-known pellagrous symptoms. Besides, there are large districts in Egypt, the West Indies, and the United States where pellagra is prevalent in the absence of any biting flies. However, Jennings, King, Siler, Garrison, and MacNeal, though unanimous in excluding the *Simulium* as a factor in the causation, suggest that the stable-fly (*Stomoxys calcitrans*) may possibly play a part in the dissemination of the disease.

The Maize Theory.

Of all the theories adduced to explain the origin of pellagra, none has been more widely disputed and supported than the maize theory of Strambio, first initiated in 1786, and later elaborated by Lombroso. Wherever and whenever pellagra has appeared investigators have come forward to attribute its causation to maize. Much has been written about the various types of maize and its toxins. Complex organic compounds, extracted from damaged maize by artificial fermentation processes, toxins elaborated during its decomposition by various bacilli and fungi, the actual moulds and bacilli found on damaged cereal and even sound maize itself have all in turn been held responsible for the production of the disease. Moreover, it has been stated that pellagra did not appear in Europe until after the introduction of maize from the New World, and that the disease spread with its more general consumption. As it is outside the scope of this paper to deal minutely with the maize question, I should like to state my opinion that maize alone, though it may be a contributory factor, is not the sole one in the ætiology of pellagra. That is to say, it has no specific action, but may, by reason of the deficiency of its protein, act as a deficient or one-sided diet. It is now known that "zein," the maize protein, is lacking in tryptophane, which has been proved necessary for growth and the maintenance of life (Wilson). Devoto, Driscoll, Volpino, and Nivello were confirmed believers in the maize theory. The two latter observers stated even that they had proved experimentally to their own satisfaction that the pellagrous and those prone to the disease were hypersensitive to maize extracts. This reaction they regarded as pathognomonic and of great value in early diagnosis.

However, in view of the great difficulty of making early diagnosis and of the similarity of the disease to other skin affections, it is reasonable to suggest that pellagra existed, though unrecognised by the medical profession, in Europe long before the introduction of maize. The disease may formerly have been sporadic, and may have assumed epidemic proportions only after the advent of maize. The increase in its incidence may have been due, not so much to the greater consumption of maize as to the absence of other vital elements which were supplanted by maize in the dietary. In the terse words of Sandwith, pellagra might be caused "not by what a man eats but by what he fails to eat."

The Modern Conception of Pellagra.

The modern conception of pellagra is that it is a food-deficiency disease, closely allied to scurvy and beri-beri. Although at first sight no three more dissimilar diseases could be imagined, they are known to possess many features in common; their predisposing conditions and environment are more or less alike, and in all three the symptoms can be ameliorated by a more nutritious diet. Scurvy and pellagra have been found in frequent association, whilst œdema, often culminating in anasarca, is by no means an uncommon sequel of pellagra, thus forming a clinical picture closely resembling that of wet beri-beri. On reading the description of that disease in Manson's "Tropical Diseases," I was at first inclined to conclude that some of the cases were really pellagrous.

The experiments of Goldberger and his co-workers in his asylum and orphanage cases would seem to be convincing testimony that pellagra is a food-deficiency disease and that complete recovery is possible, in the early stages at all events, if a decided increase in the allowance of fresh animal meat is made and eggs and fresh milk are freely given. His actual production of the disease in previously healthy subjects who were submitted to a curtailed one sided diet over an extended period would seem to leave little room for doubt as to the causation.

Sandwith, in Egypt, always found that early cases of pellagra could be cured by admission to hospital and by an abundant mixed diet. My own experience among *Turkish cases of pellagra taught me that the early* cases offered the best chances for successful treatment In advanced cases the hopes of ultimate recovery are more remote, possibly because the balance of protein metabolism is disturbed in some mysterious way, so that no additional amount of protein in the curative diet can restore it to normal

When, in the latter months of 1918, the disease appeared among the German prisoners, my faith in the food deficiency theory, which had previously appeared satisfactory, began to become undermined, so that I was driven to the conclusion that other factors than diet were involved and that a "food deficiency' could not explain the origin of the disease in these men The Germans had lived apparently upon a varied dietary, ample both in quantity and quality for normal requirements

I now propose to describe the outbreak in detail, laying special stress upon the previous history of the case, both dietetic and medical, as well as the clinical details and the results of treatment

Details of the Outbreak

The total number of cases amongst the German prisoners of war was 65, of which I give details of 32 (Table I)

1 *Age incidence*—The ages of the patients ranged from 19 to 45 The distribution according to age was as follows 24 or under, 32, 30 to 25 (inclusive), 18, 31 to 40 (inclusive), 13, 41 to 45 (inclusive), 2 The period of greatest liability to attack was therefore that of adolescence This might have been expected from the fact that the outbreak occurred among soldiers, whose ages were restricted to certain limits It should, however, be noted that the youngest were chiefly affected

2 *Previous diseases*—The principal diseases from which the patients had suffered during the two years preceding the onset were the following Dysentery, 38, malaria, 45, malaria and dysentery, 27, diarrhœa or dysentery, 62 Only 3 of the cases had no previous history either of diarrhœa or dysentery Two had had symptoms of scurvy before the rash appeared There were also a few cases of paratyphoid fever, pneumonia, and bronchitis

3 *Date of capture*—The great majority of prisoners were captured either in September or early November, 1918 All, with two exceptions, were captured in Palestine, these two were taken prisoners in German East Africa in November, 1917 One of them arrived in Egypt in January, 1918, and was in Maadi prisoners of war camp, near Cairo, from that date until he contracted pellagra in February, 1919 The other came to Egypt in March, 1918 and developed the disease in April, 1919

4 *Residence before capture*—With the exception of the two cases already referred to, all were attached to the Turkish forces in Palestine The duration of their residence in the East varied from 2 to 24 months A prisoner who had a particularly bad attack of wet pellagra had been in Palestine only two months before his capture The majority of them were over five months there, as shown in Table I

5 *Residence in the East after capture*—Excepting a brief period spent in a stationary hospital or camp in Palestine or at Kantara whilst en route for Egypt the patients had remained during captivity either in Heliopolis or Maadi camps or No 2 Prisoners of War Hospital in Cairo Many who were admitted to the hospital directly after capture suffering from other illnesses, such as dysentery or malaria, were discharged to one of the camps only to return later to the hospital with pellagra The two German East African cases were in Maadi camp, Cairo, for 13 months prior to the onset of the rash The periods intervening from the date of capture to the appearance of the rash for each prisoner can be seen at a glance in Table I

6 *Diet before capture (in Palestine)*—The official German army ration for the German troops in Palestine, all picked and highly paid men, as given me by a sergeant major in charge of the supply department, is as follows —

750 g of bread, 453 g of fresh vegetables or 226½ g of beans *peas, lentils, rice or potatoes, 350 g of fresh meat* 30 g of sausage or cheese butter or jam, 25 g of coffee, 17 g of sugar

In order to control this statement each patient was asked to furnish me with a copy of his diet while in Palestine They confessed to having partaken of the following diet

Breakfast bread butter, dripping eggs bacon, fresh or tinned sausage coffee, sugar, marmalade Lunch fresh meat, potatoes, *fresh or dried* vegetables, or beans, peas lentils, rice or oats, fresh or tinned fruit Tea bread butter, dripping eggs, cheese, tinned or fresh meat or sausages, tea or coffee (some alcoholic drinks, especially beer)

This diet was substantially the same according to all the reports There were some minor differences Some said that occasionally they did not eat fresh fruit or vegetables *for a few days*, whilst others drank cocoa instead of tea or coffee They were unanimous, however, in saying that their food in Palestine was sufficient both in quantity and quality In fact, they all asserted they had been living on "the fat of the land"

TABLE I—*Details of 32 Cases of Pellagra amongst German Prisoners in Egypt.*

A = Period of residence in Palestine
B = Period of captivity before onset of rash
C = Period in hospital
D = On admission to hospital
E = At end of period of observation

Case No	Duration in months			Weight in pounds		Condition at end of period of observation
	A	B	C	D	E	
1	9	4¼	5½	101	101	Still in hospital Very emaciated Critical
2	6	4	4	119	141	Discharged Apparently well
3	13	4	5½	112	90	Still in hospital Very weak
4	12	3¾	2½	125	139	Discharged Excellent
5	5	4	4¾	113	144	
6	21	3¾	5	121	158	
7	9	3¾	9	109	145	Still in hospital Greatly improved
8	5	4	2	111	112	Discharged Anæmic, but feels well
9	4	4¾	9	104	133	Still in hospital Greatly improved
10	5	5	3	124	131	Discharged Much improved
11	2	5¼	6	111	100	Still in hospital Still weak
12	12	5	6	132	114	Doing badly
13	6	5	5	124	160	Discharged Excellent
14	6	4¾	4½	125	146	
15	7	4¾	4½	138	154	
16	10	4½	4	107	120	
17	7	4	5¼	105	121	Still in hospital Improved
18	8	4	5	—*	—†	Critical
19	5	2¾	4¾	109	133	" " Improved
20	12	4	5½	123	164	Discharged Excellent
21	7	6	7	118	136	
22	7	5¾	5¼	98	131	
23	5	2¾	6¾	124	151	
24	10	5¼	8½	100	120	Still in hospital Much improved
25	6	4¾	5	116	130	Still in hospital Improved
26	12	5¾	4	130	140	
27	7	5¾	3½	108	137	Discharged Excellent
28	12	5¾	8½	130	151	Still in hospital Much improved
29	8	6¼	6	131	146	Discharged Excellent
30	12	6¾	6	127	124	Still in hospital In statu quo
31	24	6½	5	132	113	" " Doing badly
32	7	6½	4	108	116	" " Improved

* Not recorded (too ill) † Not recorded

Diet After Capture

The diet after capture seemed to me to be ample even for hard labour Its approximate value as reckoned in calories may be thus stated The diet after capture may be resolved into two factors (1) camp diet, and (2) hospital diet —

1 *Camp diet* (according to the Report of the Inquiry regarding the prevalence of pellagra among Turkish prisoners of war, Lelean and Boyd December 1918, p 61)

	Protein		Fat	Carbohydrate	Calories
	*B P V	Gross			
26/1/18 G R O 3462	63 5	95 2	29 77	340	2002
18/5/18 G R O 3838	54 7	90 3	28 81	351	2009
18 8 18 G R O 4385	58 3	92 7	33 47	341	2087
†Rations + canteen extras at Maadi Nov 18th	89 7	144 3	120 67	458	3580

*B P V = Biological protein value (normal B P V for working individual should be 40 Wilson) † P 17

As comment on these diets is unnecessary, I shall merely quote the opinion of the Pellagra Committee on the last one (Maadi):—

> "This (diet) is of interest in connexion with the fact that 2000 Germans remained wholly pellagra-free during two years' confinement alongside the Turks at Maadi non-labour camp, where many Turks became pellagrous under conditions presenting only one difference—viz., that of diet.
>
> "It is important to note that these Germans had apparently never been exposed to such a dietetic shortage as is associated with pellagra, and their augmented diet is both varied and extremely full for a non-labour community" (p. 18).

The first paragraph of this statement needs considerable revision, especially in view of the fact that the two Germans from German East Africa presumably consumed this diet daily for 13 months and then contracted pellagra. The second paragraph now reads as an anachronism; alternatively the findings of the Committee of Inquiry are out of date.

Hospital diet (No. 2 Prisoners of War).—As furnished by the contractor in charge of the catering:—

Ordinary diet.—Breakfast: Tea and milk, bread-and-butter, and porridge or boiled eggs (2) or omelettes, or curry and rice, or minced meat and rice. Lunch: Bread and pudding and mixed vegetable soup (thick), or pie, or stew, or meat rissoles. Tea: Bread and jam or butter, tea and milk and boiled eggs or omelettes, or stuffed tomatoes, or curry and rice, or minced meat and rice.

Milk diet.—Breakfast: Tea and milk, bread-and-butter, one pint of milk. Lunch: Bread-and-butter, milk and custard. Tea: Bread and jam or butter, tea and milk, and one pint of milk. Extras supplied: Chicken, fish, veal cutlets, raw meat, salad, eggs, bread-and-milk. (Alcoholic drinks supplied at the medical officer's discretion.) It was the invariable rule, when the patient's condition permitted, to add to the milk diet as extras chicken and two eggs.

To correct any source of error which might exist in the contractor's rendering of this diet, I asked a responsible German orderly, in charge of a German ward, to supply me with a copy of the various diets as actually served to the German prisoners in the hospital. His statement substantially verified the contractor's list. Only in one detail did it differ—viz., that tea was not supplied in the milk diet.

The above is an accurate account of the generous diets consumed for the period subsequent to their capture and prior to the onset of the pellagrous rash. The hospital diet is inserted for greater accuracy, as some patients spent but a short period there previous to the onset of the rash. However, the diet exclusively consumed by the majority during this interval was the camp diet.

Time, Place, and Mode of Onset.

In my opinion, the date of onset should be reckoned from the beginning of the last attack of diarrhœa or dysentery immediately preceding the first appearance of the rash; but, as previously stated, the disease can be only suspected in the prodromal stage. Consequently, the exact time of onset remains questionable until the characteristic eruption becomes apparent. For the sake of uniformity I have decided to estimate the date of onset by the first appearance of the rash.

Time of onset.—The date of the earliest onset, as far as my observation goes, was Jan. 10th, 1919. Two prisoners stated that about the beginning of December, 1918, they noticed a peeling of their hands. As they attributed this condition to the cold weather, they did not "report sick" and were not seen by a medical officer. In all probability the onset took place early in December, 1918. The monthly incidence was as follows: January, 13 cases; February, 11 cases; March, 12 cases; April, 14 cases; May, 4 cases; June, 2 cases; July, 7 cases.

Place of onset.—Of the 65 cases, 25 were actually patients in the hospital when the rash appeared. These were admitted suffering apparently from other diseases. On admission 8 had diarrhœa, 9 had dysentery, 2 wounds, and 1 pneumonia. Some were complicated by malaria or by broncho-pneumonia. All had diarrhœa to a variable extent. Of the remaining 40, 32 had been treated in the hospital for diarrhœa, dysentery, or malaria for some considerable time prior to admission for pellagra. They were either in Heliopolis or in Maadi camps when the diagnosis of pellagra was first made.

It must be noted that the Germans most emphatically declared that they had never seen the disease among themselves before capture, though they recognised it amongst the Turks. All these cases must therefore be regarded as primary attacks. My own experience of the accuracy of the German statements and their intelligence with regard to their previous illnesses, the mildness of many of the cases, and the generally successful response to treatment tended to confirm this opinion.

Case incidence.—I am not in a position to state the exact case incidence, as I do not know the total number of German prisoners captured in the final offensive against the Turks. However, I think it did not exceed 1 per cent. The total number of German prisoners was probably between 7000 and 8000.

Condition on admission.—As I have already stated, 25 were in hospital when the rash appeared. These cases were very interesting, as many of them were suspected and put under observation during the prodromal stage. On admission they were weak, anæmic, and emaciated. Some were so exhausted that they had not enough energy to dress themselves, and so debilitated that they frequently staggered when walking. One patient, who presented a particularly miserable and emaciated appearance, told me that previous to this illness he was always healthy and strong; in fact, he was a gymnast by profession. Many of the others were equally emphatic about their previous history. A few, however, were well nourished and expressed themselves as feeling quite well, except for the slight local irritation caused by the eruption.

The weights of all patients were recorded on admission (see Table I.), and are instructive when contrasted with the weights of the same individuals at the end of the period of observation.

Mode of onset.—For some weeks (8 to 16) before the appearance of the rash the patient usually complained of weakness and dizziness. He had obstinate diarrhœa of yellowish colour and watery consistency, with passage of undigested material. The lips were dry and coated with sodden and thickened epithelium; later they cracked, especially at the angles of the mouth. There were epigastric discomfort and pain, often accompanied by sensation of a foreign body in the stomach. Salivation, pyrosis, and stomatitis were also encountered. The tongue was enlarged, fissured, and painful in the tip and sides. The buccal mucous membrane was unduly inflamed. He experienced a burning feeling in the backs of the hands, in the lips, and occasionally in the neck, with vague sensations of aching in the lumbar region and lower extremities, which often showed a transitory œdema. The appetite varied: in some there was anorexia; in others the desire to eat was excessive. The features were expressionless and the voice was low and subdued. On the whole, he presented a picture of profound depression.

The Rash.

I shall here allude only to the salient and peculiar characteristics of the rash.

The backs of the hands of the neck, previously tingling and burning, began to show an erythema, which gave the clue to the real diagnosis. This erythema might appear simultaneously or at intervals on the face, neck, hands, and feet. On all areas the skin soon became pigmented, and eventually desquamated either in fine shreddy scales or in large flakes. Extensive cracking along the natural creases of the hands frequently occurred. The character of the pigmentation varied from a very light superficial brown to a dark brown or almost black, which involved the entire cuticle. When desquamation ceased the skin of the hands became glazed and atrophic. More rarely a thickened brown pigmentation remained.

If, subsequent to the pigmentary changes ulceration of the parts ensued, the case became one of "wet pellagra." The prognosis in these latter cases must always be regarded as grave. The term "wet" applies only to the ulcerative condition of the hands and feet, and does not signify, as some observers have supposed, the presence of dropsy.

The appearances of the rash in its various stages are best visualised by the aid of the accompanying Figs. 1 and 2.

The rash is usually understood to be symmetrical. This symmetry, in my opinion, depended on the equal exposure of the affected areas to the sun's rays. If the exposure were greater for one limb there would be a correspondingly greater extent of eruption on that side. I am quite satisfied that the distribution of the rash was directly proportional to the time and the extent of the exposure. For instance, in a rash on the chest—an uncommon site—the outline corresponded to the opening of the shirt. In the case of Turks, the rash on the feet was limited most accurately by the edges of the slippers worn. I have noticed that sun exposure intensified the eruption and that if the patient exposed himself too soon after the subsidence of an attack there was a great tendency to recurrence.

Aberrant types of the rash, in which there was diffuse generalised pigmentation and desquamation, have been observed. The occurrence of petechiæ in the eruptive areas denoted a much more severe attack, although it must be distinctly understood that, except for the rare form of the disease known as pellagra typhus, of which I have seen only two cases, the wet form must be regarded as the most serious.

Pellagra *sine* pellagra, or pellagra without a rash, is of doubtful occurrence, and accordingly needs no comment.

The differential diagnosis of the rash from allied skin affections offers no formidable difficulties to the experienced observer. The principal diseases simulating it are ordinary sunburn, eczema (erythematous form), lupus erythematosus,

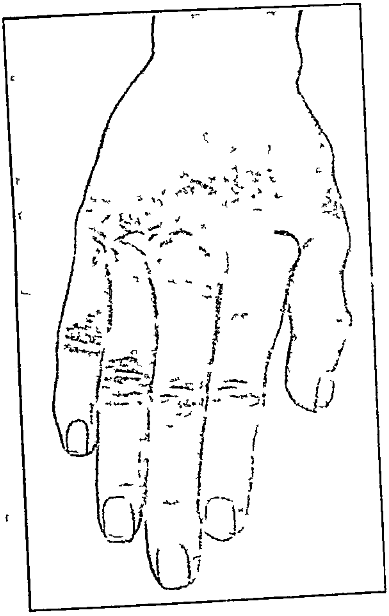

FIG 1—Eruption on hand illustrating the pigmented cuticle which is desquamating, and also the fissuring around the knuckles

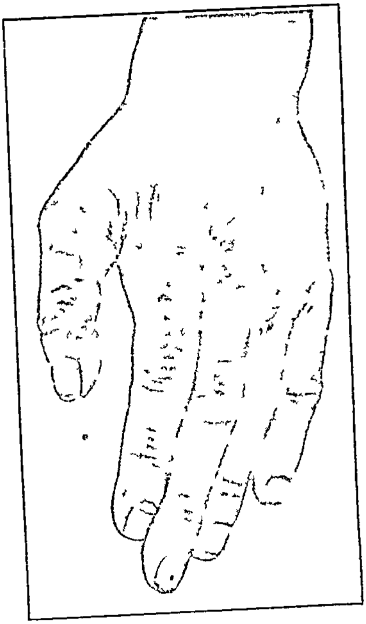

FIG 2—An earlier stage showing the complete pigmentation of the back of the hand Desquamation is just commencing There is also fissuring of the skin over thumb

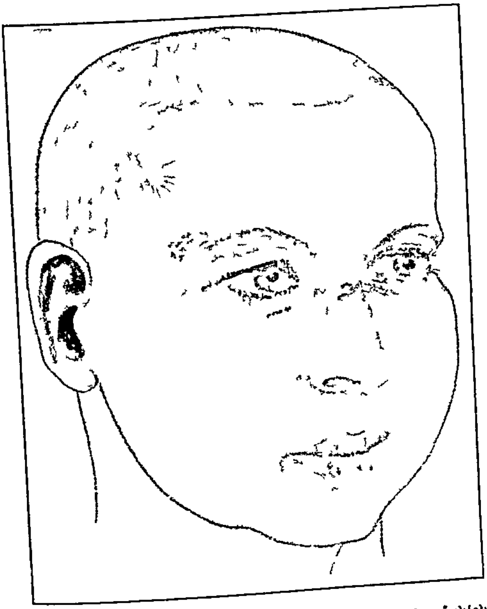

FIG 3—Showing the typical distribution of the rash on face which is swollen Note the pigmented area on nose and in front of the ear, the cracked lips and the septic spots in right anterior temporal region The painting reproduced was done within 24 hours of the onset of the œdema, which was of a transitory character

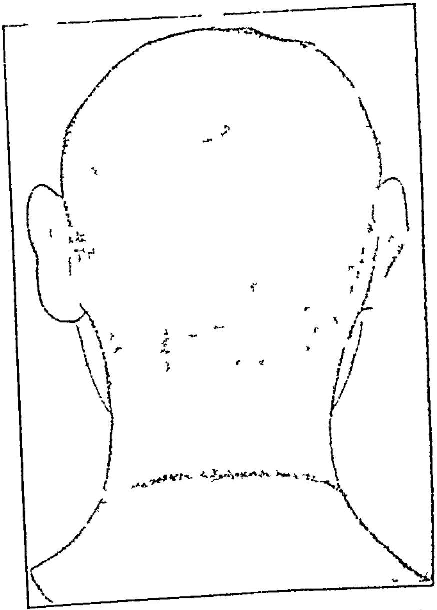

FIG 4—Showing the eruption on back of neck Desquamation is almost complete and the dark lines represent the last vestiges of pigmentation Note the collar-like appearance of the rash

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and erythema multiforme. For a detailed account of the differential diagnosis the reader is referred to Swanson's excellent monograph.

The average duration of the rash was about three weeks.

In the eruptive stage the epithelium of the tongue exfoliated and left the tip and edges, in which the fungiform papillæ stood out prominently, bright and shining. In this way the characteristic "stippled" tongue, which must not be confused with the sprue tongue, became noticeable. The mouth was sore and sensitive; the buccal mucous membrane was congested and sometimes showed scattered vesicles. White aphthous patches were occasionally seen, especially on the under and anterior surface of the tongue. The whole organ became enlarged and fissured. The tip and edges were usually inflamed, more rarely pale and anæmic.

General Symptoms and Physical Signs.

In the eruptive stage the patient was very weak and frequently compelled to remain in bed. The facies presented a drawn anxious appearance, there was considerable muscular wasting, the appetite was poor, and a subacute diarrhœa persisted. There was great mental depression amounting almost to melancholia. If the case was more severe, dysentery, either bacillary or amœbic, usually supervened and the wasting became accentuated. The majority of these German cases, however, were comparatively mild, and though at first losing weight they steadily improved after the disappearance of the rash. The subjective sensations experienced by the patient in the stage of onset continued throughout this stage.

A peculiar afebrile *parotitis* was relatively common among these Germans. In some both parotids became enlarged and, after an interval of about 14 days, subsided, whilst in others they suppurated and discharged much pus, from which a staphylococcus was isolated. The exact cause of the parotid enlargement is not definitely known. Some six months previously I had seen a similar outbreak of parotitis among otherwise healthy Turks. The temperature was normal, and orchitis was not observed. The parotids were swollen, but, unlike the German pellagra cases, showed no tendency to suppuration. In these Turks the only explanation suggested was that an infection of Stenson's ducts from pyorrhœa had taken place. However, though I could not give exact reasons for my opinion, I then thought that the parotid enlargement was due in some way to a food deficiency. When this same parotitis occurred afterwards in German pellagrins I was still more convinced of my former opinion. The presence of thrush-like patches in the mouths of some of these same cases may also be significant. Many of them also had diffuse septic sores on the face and hands, while they complained of great thinning of the hair in the temporal areas.

Nervous system.—The knee-jerks were often sluggish and occasionally absent. The cornea and pharynx of some were insensitive. Otherwise there were no evidences of nervous derangement. Mental symptoms were not observed.

Œdema.—A transitory œdema of the face, feet, or hands occurred in many cases (see Table II.). Sometimes it disappeared in 24 hours (see figures); in other cases it persisted as long as 14 days. The œdema invariably disappeared when appropriate treatment was applied. It was not as extensive or resistant as the œdema occurring in the Turkish cases.

Blood.—(*a*) The blood pressure was lowered; average systolic pressure 90, diastolic 80 (Table II.). (*b*) The total red cell count deviated only slightly from the normal, showing a secondary anæmia. No alteration in the size and shape of the red cells was detected. Neither was there any characteristic change in the total number of white cells. There was a slight relative increase of lymphocytes, but they were not markedly in excess, as in many of the Turkish patients. The mononuclears were above the normal in cases complicated with malaria. No eosinophilia was observed. (Table II.)

Urine.—Except for the presence of indican (Table II.) the urine was almost invariably normal. A trace of albumin was only very occasionally present. The significance of indican in the urine of pellagrins, though important as denoting lack of gastric function, is apt to be exaggerated, as Hunter, Givens, and Lewis have shown that pellagra may exist without formation of this substance. The amount of indican in the urine varies inversely with the acidity of the gastric juice and, if excessive in amount, is an index of abnormal protein decomposition.

TABLE II.—*Blood Examinations.*

No.	Total reds in thousands.	Total whites.	Hb per cent.	Polymorphs.	Lymphocytes.	Mononuclears.	Eosinophiles.	Blood pressures.		Indican in urine in terms of Fehling.	Coincident diseases.	Stools.	Œdema.
								Systolic.	Diastolic.				
1	3200	4000	85	60	33	7	—	100	80	$\frac{1}{64}$	D. & M.	Loose bl. & mu.	Feet.
2	2580	7000	65	63	32	4	1	100	80	Nil.	D. & M.	Loose mu. present.	Hands, face, and lower limbs.
3	3800	4400	80	77	18	4	1	92	75	Nil.	D. & M.	Loose bl. & mu. (Flexner)	Nil.
4	3740	9200	80	69	27	4	—	85	70	Nil.	D.	Loose mu.	Nil.
5	5100	6000	90	58	34	8	—	100	80	Nil.	M.	Loose.	Nil.
6	—	—	—	—	—	—	—	85	70	$\frac{1}{64}$	M. & D.	Loose bl. & mu.	Legs.
7	4660	8200	85	67	26	5	2	90	75		D.	Loose.	Nil.
8	4850	12000	80	70	23	6	1	105	75	$\frac{1}{64}$	D.	Now formed.	Nil.
9	4379	9500	75	63	30	6	1	90	80	$\frac{1}{4}$	—	Loose.	Feet & legs.
10	4850	7800	80	59	31	9	1	95	80	$\frac{1}{2}$	M. & D.	Loose mu.	Nil.
11	3610	6000	90	66	30	4	—	94	78	Tr.	Pr. M. & D.	Formed.	Face.
12	5620	9000	90	65	32	2	1	80	70	+	Pr. M. & D.	Very loose.	Abdominal wall.

Tr. = trace; + = pure Fehling; D & M = dysentery and malaria; Pr. = previous; bl. = blood; mu. = mucus.

Stools.—Only three cases had normal stools. Otherwise diarrhœa was a characteristic feature. Judging from the offensive odour of the copious—sometimes porridgy—evacuations, unusual bacterial putrefaction had taken place. The presence of undigested muscle and vegetable fibres emphasised the defective gastric secretion and corroborated the indicanuria already noted. The diarrhœa often became dysenteric in character. The organisms in the stools were either *Entamœba histolytica* or the dysentery bacilli, more frequently the former. No abnormal organism, which could be proved to have any specific relationship with pellagra, was discovered. It may be mentioned that *Ascaris lumbricoides* was often present.

Lungs.—Usually normal. Only one case of pulmonary tuberculosis was diagnosed.

Heart.—Functional hæmic bruits were occasionally heard. Otherwise no abnormality in the size or sounds was detected.

Liver.—Normal in all cases.

Spleen.—Frequently enlarged, indicating a previous malarial infection.

Prognosis.—As all these cases were primary attacks, the prognosis was, on the whole, good. When my observations concluded 31 had been discharged as apparently quite fit; while of those still remaining in the hospital 22 were decidedly improved, 6 were in statu quo, 4 were worse than on admission, and 2 were in a critical condition. Only one patient had succumbed. The increase in weight (see Table I.) recorded in the majority of the cases augured well for their eventual recovery.

Treatment.

The first essential in these cases was the effective treatment of any coincident disease. If the patient had dysentery, serum or emetine (intramuscularly) in combination with sodium sulphate by the mouth was administered, and a milk diet, sometimes with the addition of chicken and two eggs, was prescribed. Malaria, which was very common, was treated by a course of intramuscular quinine, followed by a mixture containing quinine, iron, and arsenic.

When the superadded infection was thus treated and relieved the treatment of the pellagra itself was undertaken. It consisted of rest and an increased dietary. The hospital full diet—recorded in an earlier part of this article—augmented by 7 oz. of meat, 7 oz. of bread, and two eggs daily, was given, and the patient was ordered to remain indoors and at rest. If the stools continued solid he became gradually better. His general health improved, he increased in weight, and the rash slowly disappeared. As long as diarrhœa did not occur the prognosis was good. Eventually he became robust and expressed himself as feeling very well. Whether the pellagra was permanently cured or not it is as yet impossible to say, as there might be a recurrence of the disease in the following year. It would be interesting to know how many of these cases relapsed during the spring of 1920.

Persistence of the diarrhœa was regarded as of grave import. It interfered seriously with the patient's prospects of recovery and was an indication of his defective assimilative powers. Diarrhœa and wasting were invariable symptoms in those doing badly. However, the immediate effects of this dietary were extremely satisfactory, as evidenced by the fact that 46·1 per cent. were discharged as apparently cured and 33·8 per cent. were decidedly improved, even though not fit to be discharged from the hospital.

Conclusions.

In view of the findings resulting from the investigation of this outbreak, the "food deficiency theory," which has been considered on apparently adequate grounds to be the cause of pellagra, is seriously threatened. I do not mean to suggest that a food deficiency can be quite excluded, but from the facts before us it can hardly be considered as of paramount importance. Obviously something more than a dietetic factor is involved.

A critical analysis of the diets which these German pellagrins ate before capture and during their period of captivity prior to the onset of the eruption is sufficient to explode the food-deficiency theory as a predisposing factor. These diets were ample, both in quantity and quality, for any possible requirements, and were of such varied composition that it is perplexing to understand how they could have been improved.

If the account of the diets is accepted as accurate—and I firmly believe it is accurate—the causation of the disease, far from being elucidated, becomes still more obscure. Thus it is necessary to seek some other explanation.

Let us consider how the beneficial effects of a diet sufficient for a normal healthy individual, doing a normal amount of work, are liable to be counteracted. An originally good diet may be vitiated by loss through (1) abnormal expenditure of energy, (2) defective assimilation, consequent on impaired digestive function, (3) absence of some internal secretion which is necessary for protein metabolism.

To what extent, if any, was the German diet affected by the above factors? Firstly, I do not think the Germans were subjected to undue hardship or did excessive work on the Palestine front. Many of them were employed on the lines of communication, where there was neither strenuous labour nor scarcity of food. We know that the Germans attached to the Turkish forces were picked men, who supervised affairs, and were not called upon to over-exert themselves manually; they left the actual physical labour to the Turks.

That the pellagrins suffered from defective digestive assimilation is undoubted. The incidence of malaria and dysentery was very high, and was responsible for intestinal derangement, which was a marked feature of the majority of my cases. Judging from the indicanuria commonly present and the copious foul-smelling evacuations which frequently contained undigested food material, it is evident that there was abnormal protein decomposition, and that the ultimate good effects of the diet were largely vitiated or entirely lost in this manner.

Hence, a second factor, such as previous disease, must have been in operation. Is this, however, a satisfactory explanation? Though possibly a contributory cause, a previous disease could not be held directly responsible. Otherwise, how does one account for the absence of pellagra amongst British troops who had been affected in an almost equal degree with malaria and dysentery? Again, how does one account for the absence of pellagra from the diseased and poverty-stricken masses of pe during the same period?

Lastly, are there any reasons for thinking that an internal secretion may be implicated? It has been suggested that adrenal insufficiency was the immediate cause of war œdema, which is, in my opinion, closely related to the œdema of pellagra. The probability of a hypoadrenalinæmia in war œdema is, however, based on a previous food deficiency. As we do not admit a deficiency of accessory food-factors in this outbreak, neither the information gained from the study of war œdema nor the recent researches of McCarrison are applicable and, consequently, are of little assistance in elucidating the causation of the disease among the Germans.

There was certainly no lack of fresh fruit in Palestine and Syria during the enemy occupation, as the entire orange crop of Jaffa and surrounding districts was at their disposal. One might suppose, when one considers the great improvement made by the majority of the cases on the augmented hospital diet, as prescribed in the treatment, that the former diet was defective. To obviate such a misapprehension let me direct attention to the German camp diet at Maadi prison camp, and the excellent testimonial given it by the members of the Pellagra Commission inquiry. Yet two Germans, who spent a year in that same camp on that same diet, developed the disease. I quote this example to prove that the record of the diet in Palestine is probably accurate, and that it also was satisfactory in every respect.

I have already referred to the occurrence of a parotitis and its probable significance. It would be interesting to know whether the parotid enlargement was due merely to secondary infection from the mouth or to some other and as yet unknown factor. Does the parotid possess any rôle in protein metabolism? I realise that I am treading on thin ice when I hazard the suggestion that this gland may possess an internal secretion, the function of which is concerned in the economy of protein, just in the same manner as the pancreatic secretion is essential for normal carbohydrate metabolism. I am not aware if complete extirpation of the parotids has ever been attempted. It would be of interest to discover what changes would result from such an operation.

I may add that Major P. J. Smyth, R.A.M.C., had observed a similar parotitis in Salonika. He, too, was at a loss to understand its causation, but was of the opinion that it might be due to a dietetic disturbance. The association of the parotitis with pellagra is curious and may have some relationship to the production of the latter.

Although I have been unable to advance any satisfactory cause for this most mysterious outbreak of pellagra, I do submit that I have established a clear case against a "food deficiency" as being the only factor involved.

In conclusion, I wish to record my indebtedness to Dr. Manson-Bahr for his valuable assistance, both in supplying me with information and in making suggestions for this paper. I must also thank Colonel P. S. Vickerman, R.A.M.C., for the facilities he afforded me in investigating these cases and Captain R. Paton, R.A.M.C., for the blood counts which accompany this article.

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(Continued at foot of next page.)

SYPHILIS IN DISEASES OF THE HEART AND CIRCULATION.

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THERE are reasons for expecting visceral manifestations of syphilis to appear at an unusually early period in the case of those who have gone through the stress and strain of the late war. Cases of atheroma and tabes occurring thus early have already been reported, and it is fair to assume that the heart and other internal organs are equally prone to premature degenerative changes.

The cardio-vascular system does not escape injury in congenital syphilis. The late George Carpenter read an exhaustive paper on this subject,[1] which will repay careful study. An apposite case was contributed by the present writer.[2]

The case was that of a girl, aged 15 years, whose mother had a strong history of syphilitic infection. The patient had had the usual symptoms of congenital syphilis in infancy and presented the characteristic facies of the disease. She had palpitation and marked dyspnœa. The cardiac dullness was increased, with heaving impulse, induration of the larger arteries, and the liver was enlarged nearly to the umbilicus. No murmur was found, but the aortic second sound was accentuated. The urine contained 2½ per cent. of albumin, and there were tube casts; pulse rapid and of "tick-tack" character. After a temporary improvement the child died of heart failure. There was no history of rheumatic or any other infection. At the post-mortem the cavities of the heart were found dilated and the left ventricle hypertrophied. No valve lesion was found.

In regard to the effects of acquired syphilis on the cardio-vascular system in the adult, in a recent work by the late Dr. Edward Lea[3] reference is made to the writings of Ambrose Paré (1510–1590), in which he comments on the relationship of aneurysm to syphilis, an idea which was developed by Landsici (1727). On p. 193 et seq. Dr. Lea speaks in no measured terms of the potency of the syphilitic factor in relation to circulatory disease.

> "The virus of syphilis is the arch enemy of the circulatory system; it is the main cause of aortic regurgitation, also of aneurysm; it rots the blood-vessels, leading to hæmorrhages ofttimes fatal. It blocks the smaller arteries—arteritis obliterans. The severest and most painful forms of aortic inflammations are due to syphilis. Clinical heart-block is usually formed by a gumma. Yet we are only at the beginning of the influences and potentialities for harm. ...... To cardiology will be added a useful chapter when the ultimate clinical effects of syphilis upon the heart have been more fully investigated."

Osler,[4] on syphilis of the heart, remarks, "A fresh warty endocarditis due to syphilis is not recognised, though occasionally in persons dead of the disease this form is present." The author quotes Janeway, Loomis, and others on the presence of gummata, fibroid and amyloid degeneration of the heart.

In annual Reviews of the Literature of Heart Disease in the *Practitioner*, I have frequently referred to contributions from various parts of the world bearing on this subject. Thus, in the number for June, 1914, a paper by Warthin is summarised as follows:—

> "Syphilis is more productive of heart disease than is generally supposed, and that it is frequently associated with syphilitic affections of nerve, brain, bone, and aorta. The author states he has had 200 syphilitic hearts, 50 congenital, 150 acquired, at all stages; he considers that primary lesions may be parenchymatous or interstitial. ...... The author concludes that syphilis, both congenital and acquired, is the most important factor in myocardial and endocardial diseases."

In the same review is given a case of complete A-V heart-block, in which there was a definite history of syphilis and a positive Wassermann present.[5] Lauder Brunton[6] describes a case of angina pectoris in a syphilitic subject who contracted the disease 12 years previously. The author attributed the angina to reflex irritation from a node over the sternum or possibly to the involvement of some of the cardiac nerves. Iodide of potassium completely cured him. Clifford Allbutt in his classical work,[7] vol. ii., p. 145, thus graphically describes the after-effects of aortitis.

> "The aorta of a man 55 years of age, who has taken freely of drink and suffered from syphilis, lies before us. The vessel (aorta) is heavy, baggy, and hard; its walls are beset with knotty masses. On laying it open we find the stretching has told chiefly upon the ascending arch and vault, and that besides the old syphilitic pouches and scars, and engrafted upon them, atheromatous bosses and plates, some calcareous, some ulcerated, now occupy its inner face. The aortic cusps are thickened and deformed; the sinuses of Valsalva are contracted, and the orifice of the heart is altered. The orifices of the coronary arteries also are invaded by atheroma; the orifice of the right coronary artery occluded perhaps, so that of the left barely admitting a bristle. The cusps, altered as they are, may be competent against regurgitation; the heart in substance looks healthy, and to the naked eye and the microscope, looks healthy, in spite of the interference with the mouths of the coronary arteries, presents in its muscular tissue no worse sign of degeneration than a moderate fibrosis."

On p. 239 the author writes:—

> "The cases I have seen (of angina) in younger persons have all originated in the specific infections—especially in syphilis, rheumatic fever, and influenza."

It is not safe to place implicit confidence in the patient's denial of having had syphilis when clinical evidence points the other way, neither is a negative Wassermann always to be trusted. In the present writer's experience tactful inquiry will often confirm a strong suspicion. In women a history of several miscarriages is strong evidence in favour of syphilis. A case was seen on the day of writing this paper where, in addition to miscarriages, all the children born alive had sore buttocks and were treated with mercury by the late Jonathan Hutchinson.

Illustrative Cases.

CASE 1.—H. A., 50, married, consulted me in 1902; one son and one daughter, the former healthy, the latter an epileptic. No family history of fits. History: Syphilis

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[1] Reports of the Society for Study of Disease in Children' vol. viii., p. 264.

[2] Ibid, p. 145–6.

[3] Heart Past and Present, 1919, p. 193.

[4] Principles and Practice of Medicine, 1916, p. 275.

[5] G. A. Allen, Glasgow Med. Jour., Sept. 14th, 1914.

[6] Circulation and Respiration, p. 193.

[7] Diseases of the Arteries and Angina Pectoris.

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in India at 19, malaria in W. Indies at 25. Took alcohol rather freely when young, now takes four "drops" a day. Complains of pain in the cardiac region, palpitation, and shortness of breath on any exertion. He has been worse lately, and can only walk a few yards; occasional giddiness, also much flatulence. Examination: Tongue red, stomach dilated, liver down two fingers, cardiac dullness just outside nipple line; apex beat sixth space, rough systolic murmur at mid sternum; arteries thickened, hard and tortuous; deficient resonance base of left lung due to old pleurisy; urine normal. Has lost flesh, teeth bad, pulse 76. As the stomach symptoms were the most urgent treatment was directed to their relief. A fortnight's rest was ordered, after which period antisyphilitic treatment was commenced. After a few weeks the patient lost weight and it was feared tuberculosis had set in, but no tubercle bacilli were found, and later on he put on weight and lost all the cardiac symptoms. I saw the patient at long intervals, and he held his ground well. On June 28th, 1913, he came up on account of soreness of the mouth, especially at the angles; these sores were characteristically specific, there was, moreover, a large gumma on the left side of the tongue. Green iodide of mercury was prescribed in conjunction with local treatment, and ultimately the mouth was well. There had been no visible sign of syphilis for 30 years. The patient is in better health than 18 years ago.

CASE 2.—T. G., 54, *married, one child, consulted me* in December, 1915. He complained of pain in the left wrist, running up the arm and radiating across the chest, provoked by walking or any exertion and relieved by stopping still and eructation. History: Rheumatic fever at 5 years; syphilis at 20, passed several small renal calculi at 32, influenza at 51. Present symptoms commenced a year ago while ascending a hill, increasingly worse the last three months in spite of treatment. Examination: Patient looks ill and has an anxious expression. There was dullness and hyperalgesia over the upper two-thirds of sternum, extending ¾ inch to the left, apex beat sixth space nipple line, heart dullness extended to left nipple line and to right *side of sternum. A double murmur in aortic area, the* diastolic being loud and blowing, a feeble systolic murmur at the apex increased on lying down, pulse 84, moderately splashing, arteries hard and tortuous and visibly pulsating, blood pressure 220/70, Raynaud's symptom both hands. Other organs apparently healthy. The patient was ordered to take one month's rest in bed, light nutritious diet, light wine in the place of whisky, and antisyphilitic treatment with small doses of tr. digitalis was prescribed, and a trinitrine mixture with ether for pain. The treatment had to be varied from time to time. By the end of the month the patient was able to walk a short distance without pain. Improvement was steadily maintained so that by the end of June he could walk half a mile without pain or inconvenience, and a few months later he was able to dig and mow grass. He was last seen in 1919, when the sternal dullness and hyperalgesia were gone, the murmurs were as before.

It was impossible to say which of the three infections was most responsible for the cardio-vascular lesions, but aortic disease does not commonly follow rheumatic fever, especially so early in childhood. Again, a year elapsed from the influenza without heart symptoms, so the presumption was in favour of syphilis.

CASE 3.—A. W. consulted me at long intervals on account of bronchial catarrh and indigestion. The breath was short on much exertion, but this could be accounted for by emphysema. The chest was thoroughly examined from time to time without anything abnormal about the heart being discovered. Eighteen months ago I saw him in bed for the first time when, in addition to bronchitis, I found extension of the heart dullness increased in both directions and a systolic murmur at the apex. I thought the heart would improve as the bronchitis cleared up, but the murmur remained. In December, 1919, he was again very ill from heart failure and dropsy. As the patient could not be efficiently nursed at home he was removed to the Middlesex Hospital. Later on I called to see him, when Dr. Voelker, under whose care he was, called my attention to some scars on the soft palate and damage to the uvula. These, owing to my attention never having been called to the mouth or throat, had escaped my observation.

The lesson to be learnt is that when a patient with organic heart disease comes before us and there is no history of the more usual infections syphilis should be suspected and confirmatory evidence diligently sought for, especially in patients at or after middle life. When the cardiac symptoms are not urgent it is advisable to prescribe a period of rest, together with a short mercurial course, before proceeding to the administration of the more direct cardiac remedies.

NOTES ON THE
CAUSATION OF RED DEGENERATION.*

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THE specimen of a uterus shown in the illustration, the seat of a fibroid which had undergone "red degeneration," was obtained from a single woman, 27 years of age, who was admitted to this hospital on June 2nd, 1917, under my care. She was thought to have appendicitis. The illness began on May 25th, when during a railway journey she felt a sharp cutting pain, soon passing off, on the right side of the abdomen. Reaching home at 6.40 P.M., she avoided supper (as she often did) and went to bed in her usual health. At midnight she was awakened with severe pain in the lower part of the abdomen, vomited, had diarrhœa, and fainted. Later she fell asleep till 6 in the morning. On rising she felt giddy and still had pain, but in spite of it, went her round delivering letters on a bicycle for an hour. She spent the next two days on a couch with light food, but the pain persisted. On May 31st she was advised to go to bed, but on this day her period began, and the pain in the abdomen ceased. Her temperature, however, was still raised and the bowels confined. On June 2nd, the temperature continuing, she was sent into hospital with the diagnosis of appendicitis.

On examination, the patient was not anæmic, and looked fairly well. Her temperature was 100°F., and her pulse 96. Her tongue was not clean; she had not been sick since the onset of the illness, but the bowels had been opened just before admission, the result of medicine (compound liquorice powder) two nights before. The abdomen was not distended and moved easily on respiration. There was no rigidity. There was no lump to be felt in the region of the appendix, deep palpation at McBurney's point caused no pain. On palpation of the hypogastrium, a resistance was felt rising 2 inches from the superior border of the symphysis. Pressure in this region was not painful; at most a little tenderness was complained of low down on the right side. Here, a small movable lump, evidently a gland in the lower abdominal wall, above Poupart's ligament was felt, and at times was painful.

Inspection of the vulva revealed nothing in particular—the hymen had been dilated. Per vaginam, the cervix was normal and nulliparous. On bimanual examination, the pelvic cavity was found occupied by a tumour, the size and shape of a large orange, of a smooth and regular surface, hard to the touch, easily movable within limits in all directions, as though its volume alone restricted its displacement. The tumour was continuous with the cervix. The breasts were inactive. A diagnosis of uterine fibroid was made. The menstrual history confirmed this opinion. During the last six months the periods had increased in duration; instead of four days they have lasted five or six or even seven days, and the intervals between them have diminished. The loss has gradually become much greater, so that whilst formerly five or six diapers sufficed, latterly she has had to use 16 or 17. The pain, which has preceded the periods since her eighteenth year, has also increased. She began to menstruate when 13 years of age.

Differential diagnosis.—The question now arose whether the fibroid or some other pathological condition was the cause of the signs and symptoms of the disease. We had no knowledge as to the size of the uterus before this attack. Examination of the abdomen, however, was negative as to the presence of any other pathological condition, and nothing abnormal was found in the head, neck, chest, or limbs. The urine was normal. As the patient was menstruating, the question of a uterine discharge could not be cleared up, although she gave no history of one. An inflammatory state of the fibroid, due to a possible infection, seemed unlikely. The tumour was hardly large enough to support the idea of necrosis due to a slowly occurring deficient blood-supply, and the acute onset was opposed to this, whilst red degeneration was dismissed because the cause of the red degeneration, as I saw it, did not exist. The patient was not pregnant, and there was no evidence that the pressure conditions within the abdomen were abnormal. As there was no obvious reason for operating immediately, I decided to await events.

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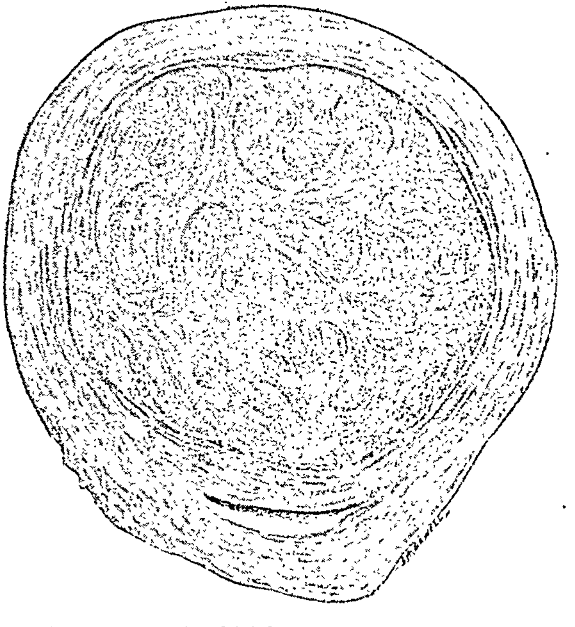
* Read at a clinical meeting held at the Hospital of St. Cross, Rugby, Feb. 28th, 1920.

Course.—With rest in bed and dieting, and attention to the bowels, the patient's condition gradually improved. The temperature slowly fell and the pulse with it. No sign of inflammation of the appendix showed itself.



Specimen of a fibroid which has undergone red degeneration removed from a single woman.

On June 7th the menstrual flow ceased, having lasted eight days; there was no subsequent vaginal discharge, and nothing abnormal was found in the cervix or vagina. I decided to operate as soon as the patient's temperature became normal. This happened on June 13th, and the next day I removed the uterus, leaving the cervix.

At the operation, from which the patient made an uninterrupted recovery, the tumour was found to occupy nearly the whole of the pelvic cavity, so that difficulty was experienced in drawing it up. It looked exactly like a pregnant uterus, was quite symmetrical, but instead of being cystic was hard. After removal it was hardened in formalin, and on section in the antero-posterior plane revealed a single intramural fibroid of the colour of raw meat.

Pathological Report.

The fibroid occupied the centre of the enlarged uterus and was everywhere surrounded by uterine wall which was fairly thick. It had grown from within one or other of the uterine walls, and had displaced the uterine cavity. Its discolouration was uniform, and markedly contrasted the diseased part from the healthy musculature of the organ, which was of its usual white colour. A portion of the uterine wall and of the tumour was sent to the University of Birmingham for histological examination. Professor Leith kindly examined it. In answer to my inquiry whether the uterine musculature was hypertrophied, Professor Leith wrote: "There is every appearance to the naked eye of hypertrophy of the uterus here, as there is in most other fibroids ......" And, as to the cause of red degeneration, he said: "The chief points about red degeneration are: (1) the asserted thrombosis and its cause; and (2) the undoubted hæmolysis and its cause." In his report on the sections, he says: "In the outer part of the fibroid (are) large blood-vessels, but they are not thrombosed, nor is there any obvious thrombosis throughout the whole series of sections, so far as I can see." The outer part of the fibroid also "shows degeneration but no actual necrosis." Sections from the inner parts of the fibroid, however, do not show "much degeneration. In great part they are histologically sound. ...... There is no thrombosis, no excess of fat, and very little, if any, necrosis, only a patchy degeneration." He ends by saying that most of the red degenerations he has examined "have shown imperfect necrosis and unsatisfactory evidence of degeneration compared with the degree of naked-eye change which they exhibited."

Pregnancy an Exciting Cause of Red Degeneration.

The red degeneration of fibroids is rather interesting. It is much more common in pregnant than in non-pregnant women. It causes a toxæmia (as shown by its effect on the temperature and pulse); it causes pain; and it causes an enlargement of the tumour. Pregnancy is a powerful exciting cause (Bland-Sutton).[1]

Out of 40 specimens Bland-Sutton examined, 26 were associated with pregnancy. But I scarcely think that 14 out of every 40 of these cases come from non-pregnant women. Kelly and Cullen, in their work on myomata of the uterus, a study confined for the most part to the non-pregnant, seem scarcely to have met the condition.[2] The toxæmia has been attributed to an infection by pyogenic organisms (staphylococcus). But Lorrain Smith and Shaw, who out of four cases found this organism in two, conclude "that the bacterial infection is secondary to the occurrence of the thrombosis."[3] Bland-Sutton is also of the opinion "that microbic infection of red fibroids is a sequence and not a cause of the change," and that "micro-organisms are rarely found in red fibroids."[1] He believes the condition is due "to mechanical interference with the circulation."[4]

Whether a toxæmia—using that word in its widest sense—is present in all cases of red degeneration I cannot say. Everybody seems agreed that the tumours become enlarged and tender. "Fever," says Bland-Sutton, "is not a common symptom, but it occurs." The patients, however, as is plain from reported cases, often become profoundly ill. "When a pregnant woman complains of acute pelvic pain," says Bland-Sutton, "and the presence of a uterine fibroid is unsuspected, then grave errors of diagnosis happen and occasionally unnecessary operations are performed." I suggest that when fever is not observed it is not looked for, or only a slight rise of temperature is found. In my case the highest temperature recorded whilst the patient was in hospital was 100·6°. The fever, apparently, is usually slight, comparable with the fever observed after many operations, due to the absorption of blood or its products, and aseptic in type. But that this is a toxæmia cannot be gainsaid. It is a mild toxæmia, but still a toxæmia. The presence of micro-organisms is adventitious; the toxæmia I refer to is not due to them; they occasionally complicate the condition which it is desirable to contemplate in its purest form.

The cause of this change is interesting. What we have to explain is the swelling; the dilatation of blood-vessels; the diffusion and hæmolysis of blood. I believe Bland-Sutton is right—that the change is due to a mechanical interference with the circulation. Such an interference may arise in two ways: (1) It may occur as the result of persistent and spasmodic contraction of the uterine musculature enclosing a fibroid, or (2) it may occur through general increase of pressure in the abdomen, as in pregnant women.

Rhythmic variation in the contraction of the uterine musculature is presumably a normal occurrence; in the pregnant uterus such variations can be observed. In the non-pregnant increase in contraction is a prelude to normal menstruation, the contraction becoming sufficient to interfere with the nutrition of the endometrium, which swells, partly necroses, and is shed mixed with blood.

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[1] Fibroids of the Uterus, 1913.

[2] Myomata of the Uterus, 1909, p. 653.

[3] Pathology of Red Degeneration of Uterine Myomata, Jour. Obstet. and Gyn. Brit. Emp., April, 1909, p. 225.

[4] Red Degeneration of Uterine Fibroid, Proc. Roy. Soc. Med., Obstet. and Gyn. Sect., 1909, p. 301.

In dysmenorrhœa the contraction is so great as to cause pain, and this pain is persistent, perhaps for a day or two, indicating the persistence of the contraction, and this pain, as we know, is experienced before the flow. With the cessation of the pain and the diminution of the contraction the blood escapes from the dilated broken vessels. Thus the idea that the uterine musculature, in virtue of an increased contraction, may be associated with a vascular change of magnitude in fibroids it surrounds is supported by analogy. And that such a factor was in play in my case is supported by the position of the tumour and by the hypertrophy of the uterine walls embracing it.

Increase of Pressure as a Causal Factor.

But another factor seems to be necessary, otherwise red degeneration would be much more common than it is. Such a factor may be a preliminary engorgement of the tumour, induced by trauma or by jolts, due to rises of pressure in the abdomen itself. Such jolts may perhaps act directly on the uterus, causing its musculature to contract more markedly than usual. The jolting sustained by my patient on her train journey may have played such a part. The tumour becoming enlarged by vascular turgescence puts the uterine musculature surrounding it on the stretch, and this in turn induces a contraction, or a further contraction of the uterine musculature, intense enough to interfere with the blood supply to the tumour. In support of this we have the enlargement of the tumour and the pain induced. In my patient we noticed the pain complained of immediately disappeared when the menstrual flow began, because, presumably, the uterine musculature relaxed. Even in subserous fibroids which have become swollen from this change a relaxation of the uterine musculature, by allowing a return flow from the tumour, may affect the pain and tenderness experienced. To such an argument it may be opposed that the uterine musculature itself remains healthy; if it causes a necrosis of a contained tumour, why does it itself not suffer? A ready answer is that the uterine musculature is a normal tissue, and its nutrition is more regulated than that of pathological parts; but whether this answer will satisfy critics remains to be seen.

That increase of pressure is a causal factor in the red degeneration of fibroids is indicated by the much more frequent occurrence of the change in the pregnant state. The intra-abdominal pressure, as I have shown, is raised in pregnancy,[6] and this increase influences the blood flow through all the abdominal organs. The arterial pressure is raised, but the capillaries are more compressed. The venous return, at least from some parts, is impeded, as shown, for example, by the bluish discoloration of the vagina. But even here jolts and jars or activity appear necessary. Most interesting is it to find that one of Bland Sutton's patients had an experience similar to mine; she was seized with the pain whilst on a train journey. She was a primigravida, aged 30, two months pregnant, who had been to London to consult a doctor. This doctor expressed himself as satisfied with her condition. Whilst on her return she was seized with such sudden and acute pain that she left the train at an intermediate station and placed herself under the care of a doctor she knew. A large tender swelling was discovered on the right side of the abdomen and thought to be due to a ruptured tubal pregnancy. The next day Bland Sutton "found a large tumour, probably a fibroid, occupying the right half of the belly, and reaching as high as the liver." The pulse was 112 and the temperature 100°. The tumour was a large subserous fibroid, with a broad stalk. It presented an area of softening, about 5 cm. in diameter. This patch appeared acutely inflamed, and was covered with flakes of lymph. Deep to it the tumour was the seat of a red degeneration. Other fibroids were present in the gravid uterine wall and exhibited the red change in streaks.[4]

Jolts and jars must necessarily cause considerable variations in the intra-abdominal pressure; to meet them the tonic contraction of the body-wall musculature is increased, so that the average pressure is raised. They may perhaps act by causing a kinking of the veins in pedunculated fibroids, or, if they stimulate the uterine musculature to contract, this contraction may obstruct the return of blood from such parts. Such an interference must cause a turgescence, a dilatation of the vessels, and a swelling of the tumour; the further obstruction and compression of the tumour, in the presence of a raised arterial pressure, causes a rupture of capillaries, an effusion of blood, a more marked swelling, and the pain. The blood rapidly hæmolyses and pigments the tissues, whilst its products entering the blood stream cause that elevation of the temperature and rapidity of the pulse with which we are familiar. When such fibroids are left the toxæmia subsides, as my case shows. The fibroids themselves may become diffluent, converted into cysts with chocolate-coloured contents (Bland Sutton). When subserous they become adherent to surrounding parts—to the abdominal wall and intestines, which may mask their nature and render removal difficult (Lorrain Smith and Shaw). When intramural it is possible calcareous salts may be deposited and the tumours in time be discharged as "womb stones."

Analogy with a Twisted Pedicle.

That the red degeneration of fibroids is really caused in this way is, I think, also shown by what happens when the pedicle of an ovarian cyst becomes twisted. There is a marked similarity between the signs and symptoms of red degeneration of fibroids and those resulting from the latter accident. The onset of the pain is alike acute, the patient may vomit, and the temperature is raised and the pulse increased. Such a case was sent into hospital on May 30th of last year labelled pyosalpinx. The patient presented all the appearances of an acute abdominal condition. A lump was felt in the left iliac fossa, which was painful and tender. The overlying abdominal wall was rigid, and the bowels were confined. The temperature was 101.4° and the pulse 120. On opening the abdomen, which was done next day, an ovarian cyst the size of a child's head, swollen, congested, suffused with blood, with a thick, œdematous, hæmorrhagic, and twisted pedicle, was found and removed, recovery being uneventful.

I instance this case from the toxæmic point of view. Like that of the red fibroid, this case presented the characteristics of a toxæmia, masked, however, by the local changes. But here there is no question of a preliminary thrombosis of contained vessels, nor are pathologists worried by the cause of the hæmolysis. The toxæmia is slight and traumatic, the same as results from the red degeneration of fibroids. These tumours when left, like red fibroids, become adherent to neighbouring parts, the toxæmia subsiding. Illustrative of this is a case admitted on Dec. 27th, 1918. The patient was 76 years old. The history was that 14 days before she had had an attack of pain and vomiting. There had been no previous attack. On admission the temperature and pulse were normal. On opening the abdomen a fairly large cyst, the size of a coconut, was found with a twisted pedicle. It was adherent to omentum, but presented no sign of acute strangulation. Recovery was uneventful. I had a similar case whilst on military service at Grantham. A woman was admitted with ill-defined symptoms. A diagnosis was not made. The abdomen was opened; a flaccid ovarian cyst, with degenerate walls, presented. During my manipulations the cyst wall gave way, dirty but inoffensive fluid escaping. The cyst was adherent to the posterior wall of the uterus and was peeled off with difficulty. No complication ensued during the convalescence. It is probable that the cyst had become twisted with a resulting necrosis and consequent adhesion.

THE London (Royal Free Hospital) School of Medicine for Women (University of London) has received a gift of £50 from the Clothworkers Company. A legacy of £200 has also been received from the late Miss Florence Davenport Hill.

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[6] Proc. Roy. Soc. Med., Obstet. and Gyn. Sect., 1913.

ORBITAL HÆMORRHAGE WITH PROPTOSIS

IN EXPERIMENTAL SCURVY.

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AND
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EXOPHTHALMOS or proptosis as a result of orbital hæmorrhage is an occasional but not frequent concomitant of scurvy in infants. Out of 64 cases[1] 6 showed orbital hæmorrhage, and in 5 of these there was proptosis; the proptosis in all cases was limited to the left eye. Of 11 cases recorded by various observers, 3 showed proptosis in both eyes, 3 in the right eye only, and 5 in the left eye only.

During experiments on monkeys by one of us (S. S. Z.) at the Lister Institute a similar occurrence was recently observed. On March 27th, 1919, the animal, a *Cercocebus fuliginosus*, was put on a scorbutic diet consisting of boiled rice, 250 g.; wheat germ, 50 g.; salts, 2 g.; milk (autoclaved one hour at 120° C.), half a pint daily, with the addition after July 7th of butter, 10 g. On May 21st there was reluctance to use the hind limbs. On the 27th the monkey remained in a lying position and would not sit up. Five c.cm. of unconcentrated decitrated lemon juice[2] were given and repeated the two following days. On the 29th there was some exophthalmos and hæmorrhage in the eyelids. By June 2nd under treatment with the decitrated lemon-juice the eye symptoms had almost disappeared and the legs were being used.

On omitting the lemon-juice the animal again showed hæmorrhage in the eyelids, but with further administration of the lemon-juice the monkey again became quite normal. On July 18th, after discontinuance of the lemon-juice for 29 days, the hind legs were again not used, and the next day purple discoloration of the gums about the lower incisors appeared. There was also some diarrhœa. On the 21st hæmorrhage reappeared in the upper eyelids, and on the 22nd there was marked exophthalmos of the left eye, with such extreme eversion and bulging of the conjunctiva as completely to hide the cornea; the everted conjunctiva was covered with blood. The right eye showed no exophthalmos. The animal was lying on its side unable to sit up, but apparently not in pain. Decitrated lemon-juice of double strength was given in large doses (50 c.cm.) morning and evening, and next day there was much less exophthalmos, though still inability to sit up. On the 24th still larger doses of the decitrated lemon-juice were given, 60 c.cm. of the double strength in the morning and 50 c.cm. of quadruple strength in the evening. The same day the monkey began to move its legs and sat up, and the proptosis of the left eye was greatly diminished, and subsequently disappeared in a few days.

The recovery was extremely rapid; within six hours after the first administration of the double strength decitrated lemon-juice there was a marked improvement in the general aspect of the monkey, although the individual symptoms were still pronounced.

In this particular instance the exophthalmos affected the left eye, in agreement with the special tendency to left-side affection already observed in infants; but further observations will have to show whether this special liability of the left eye holds good in monkeys. Dr. A. Harden and Dr. S. S. Zilva[3] have recorded an experiment on another monkey (*Macacus rhesus*) in which the scorbutic exophthalmos affected the right eye.

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[1] Still: Common Disorders and Diseases of Childhood, 3rd ed., p. 114.
[2] THE LANCET, Jan. 4th, 1919, p. 17.
[3] Journ. Path. and Bacteriol., vol. xxii., 1919.

LITERARY INTELLIGENCE.—A new edition of Sir Edward Sharpey Schafer's "Essentials of Histology" will shortly be published by Messrs. Longmans.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

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A VERY EARLY CASE OF

ILEAL INTUSSUSCEPTION FOLLOWING SEVERE TRAUMA

IN A BOY AGED SIX YEARS.

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THE following case is of some interest, because a very early intussusception was discovered 4¼ hours after a street accident. The discovery of an intussusception at a laparotomy undertaken on account of suspected visceral injury in a "run-over" case is certainly unusual.

T. C., a boy aged 6 years, was admitted to the East London Hospital for Children at 6 P.M. on Dec. 4th, 1918. At about 5 P.M. he had been knocked down by a motor lorry. On admission he was quite conscious. Breathing was shallow and difficult. There was bruising of the right hip, right arm, and both knees. There was subcutaneous emphysema of the upper half of the right side of the chest, both in front and behind. The right fourth and fifth ribs were fractured at about their middle. The right base was dull. The abdomen was universally rigid, and did not move with respiration. There were slight fullness and tenderness of the epigastrium, but no tenderness elsewhere. Pulse at 7 P.M., 110. He vomited three times between admission and 9 P.M. Pulse at 9 P.M., 130, feeble, and thready. (The above were the findings of the house surgeon.)

When I first saw the boy (shortly after 9 P.M.), he had already been given morphia. He looked ill. On examining his abdomen I could find no greater rigidity or tenderness than the fractured ribs, with the underlying damage to lung and pleura (as evidenced by the surgical emphysema and dullness at the base) would fully account for. Having regard to this chest injury I was very loth to operate. However, from the bruising it appeared likely that a wheel, or something heavy, had passed over the right side of the abdomen; and might have caused serious damage to the viscera. The rise in pulse-rate between 7 P.M. and 9 P.M. certainly suggested this. The house surgeon who had seen the boy before morphia had been given was confident that there was serious visceral injury. I knew not what signs the morphia might be masking, and therefore reluctantly decided to operate.

The operation was commenced at 9.15 P.M. On opening the abdomen there was no trace of free blood or fluid in the peritoneal cavity. I started on a systematic investigation of the small intestine with no expectation of finding any injury. On reaching about the middle of the ileum I discovered an intussusception little more than an inch in length, with slightly distended gut above it and completely collapsed gut below. This intussusception was easily reduced. No external evidence of injury to the gut either at the site of the intussusception or elsewhere was discovered. After the intussusception had been reduced no marked thickening, such as might have been caused by hæmorrhage into the wall of the gut, could be felt. The abdomen was closed. The wound healed per primam and the patient was discharged apparently well on Dec. 20th.

Remarks.

To me the chief interest in this case centres in its direct evidence that injury may cause intussusception. In the relatively rare cases of intussusception in children over 2 years old (and in adults) trauma may perhaps be a more common cause than is usually supposed. As a dresser I remember having seen an intussusception in a girl aged 7 years, and later as a house surgeon I saw an ileal intussusception in a boy aged 17 years, in both of whom there was a history of a blow on the abdomen. I had been inclined to regard these blows as coincidental rather than causal, even though so well-known a textbook as "Walsham and Spencer" gives trauma among the causes, for patients are very apt to explain any illness as due to some trivial trauma.

I have not attempted to search the voluminous literature on intussusception, but have contented myself with looking up such books and articles on the subject that lay at hand As already stated, Walsham and Spencer[1] mention "external violence" as a cause of intussusception Adams,[2] in a review of 100 cases admitted to St Thomas's Hospital, states that there was a history of injury in only one case Thompson and Miles[3] make no mention of trauma as a cause of intussusception Warren[4] does not mention it Miles,[5] writing in "Choyce's System of Surgery," does not mention it Walton[6] makes no mention of it Souttar[7] quotes Elliot and Corscaden as giving trauma as a definite cause in a few cases

It appears likely that trauma may cause an intussusception in two ways Firstly, it may cause a hæmorrhage into the gut wall, which is then caught and forced onwards in the same way as an adenoma or an inverted Meckel s diverticulum That hæmorrhage into the gut wall may cause an intussusception has been shown by Lett,[8] Sutherland,[9] and Collinson,[10] who reported cases caused by hæmorrhage in Henoch s purpura The hæmorrhage caused by trauma is, however, more likely to be under the peritoneal coat, where it would not easily lead to intussusception Secondly, intussusception may perhaps originate in a temporary local paralysis of gut caused by violence applied through the abdominal wall Walton[6] quotes the experiments of Nothnagel in which he induced intussusception by electrical stimulus, "invaginatio spasmodica," and by inducing local paralysis by crushing, "invaginatio paralytica" As clinical illustrations of "invaginatio paralytica," Walton quotes a case following a Richter s hernia and a case reported by Sherren,[11] in which a gangrenous portion of the transverse colon acted in the same way

It seems not unreasonable to suppose that violence applied through the abdominal wall may occasionally crush a small portion of gut so severely as to cause a temporary local paralysis and yet leave no obvious sign of injury Such is, I believe, the explanation of the case reported here and, perhaps, of other cases where a less convincing history of trauma is given

References —1 Walsham and Spencer Theory and Practice of Surgery, 1903 2 Adams and Cassidy Acute Abdominal Diseases 1913 3 Thompson and Miles Manual of Surgery 1909 4 Warren A Text-book of Surgery vol ii 1915 5 Miles A System of Surgery by Choyce vol ii 1912 6 Walton The Practitioner August 1911 7 Souttar The London Hospital Gazette June 1911 8 Lett THE LANCET Feb 20th 1909 9 Sutherland Pediatrics *vol ix 1896 10 Collinson* THE LANCET *March 12th* 1910 11 Sherren Clinical Journal 1906

Plymouth

A CASE OF SYPHILITIC NEPHRITIS

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THE following case of acute nephritis complicating secondary syphilis seems worthy of record, since the response to specific *treatment* was unusually rapid and complete

H M, an Egyptian tram conductor aged 20 was admitted to Kasr el Aini Hospital on Dec 6th 1919 for nephritis He stated that a fortnight previously he had begun to *suffer* from loss of appetite with occasional vomiting, and that a week later œdema had appeared, first in the scrotum and then in the face and whole body. *On* admission he *presented* the usual signs of nephritis. There was extensive œdema but no free fluid in the serous sacs, the urine averaged 1000 c cm per diem (vide chart) *had* a sp *gr 1015 and contained a* considerable amount of albumin (13 per 1000 Esbach) Microscopically, there were numerous casts granular and leucocytic, as well as bilharzia ova, *with attendant blood* and pus corpuscles Over the patient's body were scattered papules of a deep coppery hue There were snail track ulcers on the tonsils and a barely healed hard *chancre on* the penis Blood examination gave a positive Wassermann reaction The patient admitted noticing the chancre about two months before, but had taken no medical *treatment*, and was anxious to conceal his disease

Treatment consisted of intravenous injections of novarsenobillon, 0 45 g being given on the fifth *and* a similar dose on the twelfth *day after admission* The result was immediate and very striking Within a few hours of the first injection the urinary flow increased four fold and the diuresis with frequent micturition continued as shown on the chart

The œdema quickly subsided and inside a week the albumin had diminished to 1 part per 1000 Two days after the second dose of novarsenobillon, the patient had an attack of fever lasting three days which caused a temporary fall in the diuresis but did not increase the albuminuria which had so rapidly declined A fortnight after the treatment had begun the patient insisted on taking his discharge as he felt perfectly well and could not afford to lose his employment At this time the urine measured 2500 c cm per diem, had a sp gr 1013 *and contained* but a *trace of* albumin (under ¼ per 1000) with scanty granular casts The rash had largely faded, but no effect on the bilharziasis was apparent, ova were *plentiful* and hatched as freely as on admission

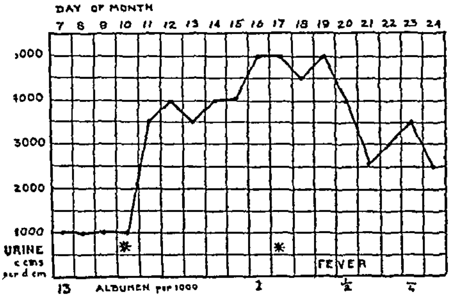

Chart showing quantity of urine passed per day in case of syphilitic nephritis ** Indicates intravenous injection* of 0 45 gm novarsenobillon

The diuresis appeared to be entirely derived from the retention of fluid in the body For within the space of 12 days the patient lost 20 kilos in *weight (over 3 stone)!* This amount—20 litres—closely corresponds to the excess of urine passed if we allow 2 litres a day of urine as the normal maximum output

The immediate effect of salvarsan therapy on this patient was so striking that there can be little doubt that the nephritis was entirely syphilitic in origin As in the majority of cases reported, nephritis appeared in the early secondary stage, about three months after infection I attribute the success of treatment (so far as it could be carried *out) to the* early use of adequate doses of the salvarsan compound instead of mercury It seems improbable that a nephritis appearing during specific treatment of syphilis would respond so favourably as this case where no previous treatment had been *received*

PERICARDIAL EFFUSION FOLLOWING THE INJECTION OF ANTIDIPHTHERITIC SERUM

BY C WILLETT CUNNINGTON, M B, B C CANTAB

THIS case is of sufficient interest to be worth recording

The patient, a boy, aged 10, presenting clinical and bacteriological evidence of diphtheria, was given on the fourth day of the disease an injection of 7000 units of serum His temperature was then 101° F The cardiac physical signs were normal Thirty six hours later the temperature rose to 103° The fauces had cleared, but there had developed well marked signs of a pericardial effusion, obvious *præcordial bulging*, dullness extending beyond the apex beat *to the line of the* anterior axillary fold Breath sounds absent over the front *of the upper lobe* of the left lung There was no pericardial friction audible at any time in the illness The pulse rate was 120, and its quality good and rhythm regular

Dr W W Jameson (medical officer of health for Finchley) to whom I showed the case as a curiosity, *agreed in the* interpretation of the signs, which suggested a passive effusion into the pericardial sac rather than an inflammatory pericarditis

The signs of fluid gradually diminished and disappeared after ten days The diphtheria itself proved a mild attack *and cleared up without any* further complications There was no serum rash

Dr Jameson *informs* me that he has been unable to trace in the *literature any record of a similar occurrence* following the injection of serum

Church End Finchley

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION FOR THE STUDY OF DISEASE IN CHILDREN.

A MEETING of this section of the Royal Society of Medicine was held on April 23rd, Mr. J. P. LOCKHART-MUMMERY, the President, being in the chair.

Renal Dwarfism with Bony Changes.

Mr. D. H. PATERSON read a paper on Chronic Intestinal Nephritis associated with Infantilism and Curious Bony Changes. After briefly reviewing the literature of the subject he described three cases:—

Case 1 was that of a boy, aged 11 years, who was admitted to hospital in January, 1917, for deformity of the bones of the legs and arms and inability to walk, because of knock-knee. The condition had been present for four years. He was healthy at birth and breast-fed for 9 months, but afterwards kept on fluid food longer than usual since he disliked solids. He had always been fond of fruit, and had been a great drinker of water. The father and mother and the four other children of the family were all healthy, and showed no bony deformities, nor was there any family history of kidney disease. Until the age of 6 he had been quite well, but then had an illness which started acutely, and was accompanied by feverishness and vomiting. After this he did not seem so well, and at the age of 7 it was noticed that his legs were bent, and he became progressively more knock-kneed. He was treated for rickets by splints, but at 7½ years old was admitted to the local hospital, where it was found that he had kidney disease. The bones of his legs were broken and re-set, and from that time he had not been able to walk. When admitted to the Hospital for Sick Children, Great Ormond-street he was found to be a very small, pale child, and very thin. The legs were markedly deformed, with bowing outward and forward of the femora and tibiæ; there was also marked muscular wasting. An operation of double osteotomy of the femora was done and was followed by uræmia, which proved fatal. The urine, examined after operation, contained albumin and casts. X ray examination showed bony deformities. Post mortem the kidneys were extremely small and showed some cystic and fibrotic changes. The only other organ which was found abnormal was the heart, which was dilated.

Case 2 was that of a boy, aged 1 year and 9 months, admitted to hospital in September, 1919, with deformity of the ankles and wrists, which had been present for 10 months. There was no other case of deformity in the family. The boy had been breast-fed until 11 months old, and had never been able to take any solid food. When a year old he was fat and could stand, but was small. He seemed to lose power in his legs, and later it was noticed that his arms gave way also, and he had no strength in them. They afterwards became permanently flexed. After an illness in March, 1919, associated with constipation and vomiting, he steadily lost weight. When admitted he was seen to be a very much underdeveloped and under-nourished child, and weighed 10 lb. 8 oz. He seemed to be bright and intelligent, but did not speak. The thorax was long and narrow in shape, and there were parietal and frontal bossing, an open anterior fontanelle, beaded ribs, and Harrison's sulcus. The liver and spleen were both enlarged. The back was straight, but the limbs were extremely deformed; the femora were bowed and the patellæ rotated outwards; the tibiæ were very bowed, and the radii and ulnæ showed a like deformity. The hands were held in accoucheur position, but there was no suspicion of tetany. Respiratory, circulatory, and nervous systems were normal. Ten days after admission the child's diet was increased to solid food, including minced meat and potato. He then developed uræmic convulsions and died. Post mortem the left kidney was found to be extremely small, and appeared to be cirrhotic. The right was slightly larger, but was also abnormal, its condition suggesting old inflammation, and its capsule stripping with difficulty. Both suprarenals were enlarged. The bones showed changes typical of rickets at the epiphyses. Microscopically the sections of the kidney showed a condition of fibrosis to a marked degree, the kidney substance being replaced entirely in some areas by fibrous tissue. The arteries were greatly thickened and many of the glomeruli were obliterated. In some places the tubules showed enlargement as though in an early stage of cyst formation. The kidneys weighed about a drachm each.

Case 3 was that of a girl, aged 7½, admitted for the contracted legs and bent wrists which had been present since birth. There was no family history of a similar condition. She was a premature child, born at the seventh month of intrauterine life and had been breast-fed for six weeks, after which time she was given cow's milk and seemed to thrive quite well. She had never walked. At 3 years a tenotomy had been done as her feet were being drawn up. On admission she was found to be 34 in. in length. Her head was square and bossed. The shoulders were sloping and rounded, and the clavicles curved antero-posteriorly. There was possibly an old fracture of the right clavicle. Flexion, extension, and abduction of the shoulder-joint were all limited. The humeri were very thin. The radius and ulna on each side showed great enlargement and deformity at the lower ends, giving the impression of old fractures which had united in bad positions. The thorax was long and narrow and pigeon-chested, and the ribs were beaded. The liver reached to two fingers'-breadth below the costal margin; the spleen was just palpable. The legs would not fully extend at the hips, and there was considerable genu valgum with rotation of the patellæ outward, the knees not being able to be fully extended. The tibiæ were small and sabre-shaped, and the lower ends of the tibiæ and fibulæ were much enlarged. Dorsi-flexion of the feet beyond a right angle was impossible. The back was straight. The urine contained a trace of albumin, but no casts. Mentally the child was very backward and seldom spoke. The phenol-sulphophthalein test indicated a great retardation in the secretion of the kidney. The Wassermann reaction was negative. An attempt was made to correct her bony deformities, but the left leg was refractured while being manipulated. Two days before her death she developed fine tremors of her hands, and a large amount of albumin was present in the urine. The urea was 0·3 per cent., and the nitrogen excreted as ammonia was to that excreted as urea as 1 to 10. Creatinin equalled 8 mg. in 10 c.cm. of urine. The child became comatose and died, passing no urine during the last 12 hours of her life. The cerebro-spinal fluid was normal but for a greatly increased amount of urea. The kidneys, post mortem, weighed 12 drachms each, and the suprarenals 2 drachms each. The kidneys were cirrhotic, their capsules stripping with great difficulty, and on section several small cystic spaces could be seen. Microscopically there was marked increase of fibrous tissue throughout the kidneys and a tendency to cyst formation, the tubules being greatly enlarged and filled with colloidal material. The glomeruli were fibrosed in places.

Attention was particularly drawn to the bony deformities. These, he considered, were quite unlike those of rickets; the epiphyseal lines were straight, and the radiographs distinct from those of rickets. Below the epiphyseal lines there was a stippled appearance, which the microscope showed to be due to cartilaginous callus with partly formed bone present in the islets. The same appearance might be seen in rabbits at the site of a fracture. One explanation of the picture might be that it indicated the repair of multiple fractures by the bone throwing out cartilaginous callus at their sites. Certainly the radiograms seemed to show that there had been multiple fractures on the diaphyseal side of the epiphyseal line.

Dr. MORLEY FLETCHER said that he had not seen the type of deformity of the bones just described. He showed a girl, aged 14, who had been backward in physical development since infancy, and had suffered from polyuria. She was small, weighing only 35½ lb., with a pallid face and poor nutrition. Her intelligence was good. There were no signs of puberty, and her appearance was that of a girl aged 5 or 6. The systolic blood pressure equalled 240 mm. Hg. The left ventricle was hypertrophied, and the aortic second sound accentuated. The radial pulse was thin and wiry. The only bony deformity was a slight genu valgum. The urine was acid, its specific gravity 1010, and it contained 0·3 per cent. of albumin and a few granular casts. The *Streptococcus fæcalis* had been grown from it. Albuminuric changes were present in the optic disc, and were of some standing. Speaking of these cases generally, he said that the degree of infantilism was perhaps more marked than in any other form of that condition, but the order of intelligence was rather high. A question of interest was the significance of globulin in the urine. It had been noted in two cases. The relationship between the renal infantilism and the bony deformity was obscure. It was clear that the renal changes began either in intra-uterine life or in early infancy. Syphilis could be excluded as the cause. A possible explanation might be infection of the urinary tract.

Dr. H. C. CAMERON referred to a very early case described by Davies Colley in about 1880 under the title "Dwarfism and Extreme Deformity." He had himself shown a case where the fibrosis was combined with a horseshoe kidney, and suggested that the two might be ætiologically associated. He had under his care at present a case which was very characteristic in appearance and with similar bony changes, but without albuminuria. A practical point had been emphasised by Barber—namely, the danger of operative interference, for uræmia was likely to follow.

Dr. F. PARKES WEBER drew attention to a group of cases included under the term diabetes insipidus in which some infantilism is present. The differences were that in this group the degree of infantilism was not very great, there was an absence of organic disease of the kidneys, the faulty organ was probably the posterior lobe of the pituitary gland, and the Wassermann reaction was often positive, congenital syphilis probably playing a part.

Suprarenal Sarcoma.

Dr. WEBER read notes of a case of Suprarenal Sarcoma of the Robert Hutchison Type.

The patient, who had been ailing since November, 1919, was a cachectic and emaciated girl, aged 5 years, with enormous enlargement of the liver and with a remarkable dark-bluish ecchymotic bilateral swelling of the eyelids. She was nearly blind from post-neuritic optic-nerve atrophy on both sides. Death occurred in March, 1920. The necropsy showed a curiously lobulated, very sanguineous, and partly necrotic tumour of the medullary portion of the right suprarenal gland, some of the cortical portion of which still persisted as an outer covering. The tumour, which microscopically appeared to be a round-celled sarcoma, was as large as a big orange, and during life was completely hidden by an enormously enlarged liver, diffusely infiltrated with the tumour-cells. Both the ovaries and many of the abdominal lymph-glands were likewise infiltrated, but the cranium was especially involved, the metastatic growth being situated chiefly between the dura mater and the inner table of the skull. The condition of the optic foramina and the orbits, affected in the same way, doubtless accounted for the ecchymotic œdema of the eyelids and the post-neuritic optic-nerve atrophy.

In regard to differential diagnosis during life, chloroma and all forms of leukæmia were excluded by the blood examination. Scurvy was out of the question. But the fact that for a month the child had been given a teaspoonful of brandy, four times daily, suggested at first the possibility that the enlargement of the liver might be due to hypertrophic cirrhosis, and that the blindness might be accounted for on the supposition that the brandy had been adulterated with methyl-alcohol.

SECTION OF ANÆSTHETICS.

Anæsthesia for Thyroid Gland Operations.

A MEETING of this section of the Royal Society of Medicine was held on April 9th, Dr. HAROLD LOW, Vice-President, being in the chair.

Mrs. DICKINSON BERRY read a paper on anæsthesia for operations on the thyroid gland. Her remarks were based upon an experience of 700 cases of operations for removal of goitre. In the past chloroform and its mixtures had been used either throughout or for induction, but since 1912 Mrs. Berry had relied entirely upon open ether and had met with no fatality and little anxiety since confining herself to that anæsthetic. She advocated an anæsthesia as light as is compatible with the requirements of the operator. Atropine is used beforehand, but morphia is disapproved of by Mrs. Berry and a slow induction is practised. The operation begins when regular breathing is established, even if the conjunctival reflex still persists. When the gland is reached ether is withheld if the patient is absolutely quiet. The eyes may open spontaneously or talking occur, the patient remaining quite motionless. Dislocation of the tumour is a dangerous process in cases of severe dyspnœa; the anæsthesia is kept specially light at this stage. Straining should occur when the last ligatures have been tied, in order to show any points which might lead to post-operative hæmorrhage. Notes of cases illustrating the above and other points were read. Two groups of cases were described as offering special danger, those with much tracheal obstruction and those with cardiac trouble. For the former it was often necessary to use oxygen with the ether. The cardiac cases included those in which the heart was affected by long-standing dyspnœa, true exophthalmic cases and cases of goitre not typically exophthalmic but associated with cardiac symptoms.

Dr. J. F. W. SILK said that "team-work" was most important in these cases, and so was a light form of anæsthesia. He had found rectal oil-ether of great value, particularly in exophthalmic cases.

Mr. JAMES BERRY said that the anæsthetist should never begin the administration for a goitre operation until the surgeon had on gloves, gown, &c., and was absolutely ready to begin. It was occasionally necessary to perform the earlier stages of the operation very suddenly and rapidly on account of dyspnœa. In cases of dyspnœa it is well to ascertain to what extent the head can be extended without serious interference with breathing, and during the operation never to let it be extended beyond this amount. It is Mr. Berry's custom to have the head held firmly throughout and only turned under special directions. In cases of dyspnœa the anæsthetist should acquaint himself before operation with the exact position and shape of the trachea. A unilateral goitre displaces the trachea to the opposite side, curves it, and flattens it on the side of the tumour. The point of maximum compression is nearly always 1½ inches below the cricoid. The dyspnœa is always due to direct pressure on the trachea, and has nothing to do with irritation of recurrent laryngeal nerves. In cases where the heart is seriously affected its condition should be ascertained by X ray and electrocardiograph examination. Mr. Berry said that he was using local anæsthetics less and less for goitre operations, and relying more and more upon light ether anæsthesia.

Dr. J. S. GOODALL thought the performance of any thyroid operation, except simple ligation, under local anæsthesia undesirable on psychic grounds. Any local anæsthetic containing adrenalin might induce auricular and even ventricular fibrillation. He had examined the hearts of many patients before, during, and after thyroid operations, paying particular attention to: (1) Degree of myocardial exhaustion; (2) amount of dilatation; (3) presence of definite myocardial degeneration; (4) height of systolic blood pressure. Electrocardiographic and X ray examination, together with mapping out of the field of cardiac response, are essential in estimating the condition of the myocardium.

Dr. J. BLOMFIELD said that he used open ether for these cases, but relied more than the reader of the paper upon preliminary injection of omnopon, scopolamine, and atropine. Many surgeons were uncomfortable if as light a degree of narcosis as that described by Mrs. Berry were employed. He related a case showing the necessity for the surgeon being ready to operate from the moment induction of anæsthesia was begun.

Dr. F. E. SHIPWAY preferred intra-tracheal ether in all goitre operations except the exophthalmic cases. All difficulties were removed by this method, particularly those due to pressure of the tumours upon the trachea, and a very light narcosis could be accurately maintained, permitting straining or coughing at the surgeon's desire. For exopthalmic cases he favoured oil-ether *per rectum*, preceded by large doses of morphia and scopolamine; the direct laryngoscope and catheter should be at hand.

Dr. HAROLD LOW said that the cases requiring special treatment were those in which the trachea was pressed upon and those with constitutional symptoms. He considered the ideal anæsthetic to be either intra-tracheal or rectal ether; next to these he placed open ether used to maintain a light degree of narcosis. Only skilled anæsthetists should undertake goitre cases.

Dr. F. S. ROOD divided goitre cases into three groups: (1) simple tumours or cysts with no respiratory obstruction and no toxæmia; (2) patients with stridor and possibly definite respiratory obstruction and heart failure; (3) cases of exophthalmic goitre. In the first group there is nothing special about the anæsthetic. In the second group he preferred chloroform to ether; in the exophthalmic cases he though it most important to guard against the element of fear; a preliminary injection of morphia and scopolamine was most useful.

TUBERCULOSIS SOCIETY.

AT a general meeting of this society held on April 26th, with Dr. H. DE CARLE WOODCOCK in the chair, Dr. CLIVE RIVIERE read a paper on

Some Thoughts on the Treatment of Pulmonary Tuberculosis.

He begged to be forgiven if, in attempting to provoke thought, he appeared to wander superficially over a very wide subject. The world in general had recently been talking of the failure of sanatorium treatment. The sanatorium had not been a failure, but was a definite and successful method of obtaining a cure. The rest and exercise practised in these institutions caused auto-inoculation. This, under medical control, raised tolerance, and was nature's own method of obtaining a cure. The downward progress of uncontrolled cases was due to excessive auto-inoculation which did not stimulate a beneficial immunising response. Sanatorium treatment as practised was too short, but in spite of this many cases returned arrested. If given the opportunity the cases would be legion which would respond to this treatment. It is after the patient's return home that the sins are committed, when, owing to the lack of any after-care system, he returns too soon to unsuitable over-strenuous work and passes out of control. The gains made in sanatorium in this way fail to be consolidated and the institution receives the blame. Cases must be obtained early and Dr. Riviere was of opinion that many patients with hilus disease had been treated in the early stages as neurasthenics. After-care was one of the most difficult problems, because the patient resents any further control after his return home. The system, however, is essential because the ultimate permanent cure is a matter of years, not months.

Graduated exercise was first started in Germany at the sanatorium of Brehmer. This was followed by Dettweiler, who preferred to call his method graduated rest. Much controversy and two distinct schools of thought had resulted; the one in favour of exercise in preponderance, the other in favour of an excess of rest. In this country, probably as a result of following Otto Walther, of Nordrach, the exercise treatment had predominated and it had been further developed by Paterson at Frimley. Graduated exercise should in any case only be commenced when cases become afebrile; fever must be controlled by rest. Both are essential, but where the two meet is still a matter for investigation. The vigorous exercise régime is more suited to the English temperament, but each case must be considered on its merits.

Recently the treatment by reactions from exercise and tuberculin had extended to the use of chemical agents. Gold, copper, arsenic, nickel, and cobalt had been tried with no very definite results. Specific action upon tuberculous tissue had not yet been proved. The cacodylates caused marked primary and secondary reactions with apparent improvement. It was questionable whether copper exercised any selective action upon tuberculous tissue and gold certainly did not, but it appeared probable that improvement occurred as a result of the class of case treated and did not depend upon the drug used. It has been claimed that antipyretics in small doses raise tolerance, but this is probably due to reduction of fever causing improvement in general condition and better appetite. These results would be quite well obtained by exercise, but here difficulty arose in control.

Discussion.

Dr. H. A. ELLIS said that in Coolgardie Sanatorium, Australia, exercise had proved almost universally bad, because of the high atmospheric temperature. In Middlesbrough the opposite had been his experience. He had found the condition of the skin an excellent guide to the amount of exercise to be allowed. In the early-age cases of Brownlee exercise was universally bad. Tuberculous cases could be divided into three classes: hypersensitive, sensitive, and subsensitive. Copper when injected intravenously combined with hæmoglobin and became inactive. He considered that it exerted a definite specific action upon tuberculous tissue.

Dr. HALLIDAY SUTHERLAND thought that rest treatment was run to death in Switzerland. There was an excellent increase in flesh, but no solid improvement in the disease. Sanatorium treatment was sufficient without adjuncts. He had tried copper without benefit. If a cure was to be a proved success it must be effective in all cases, including the advanced; no selection must be made. The fall in temperature in using colloidal copper was due to the peptone contained in it; it was doubtful what the active principle was.

Dr. L. J. SHORT said that as patients were unwilling to carry out treatment for a sufficiently long period in a sanatorium, an after-care labour colony became an indispensable part of the scheme.

The CHAIRMAN said that he had recently tried the effect of producing an extra-costal pneumothorax effect, by applying sandbags to the affected apices; but it was too soon yet to determine the results. He considered in X ray photographs that striæ, extending to the base of the lung, might be disregarded, but those extending to the apex were usually significant of a bad case.

Dr. RIVIERE briefly replied.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION OF MEDICINE.

Senile Urticaria Pigmentosa.

A MEETING of this section was held, with Dr. G. PEACOCKE, the President, in the chair, when Dr. M. DRUMMOND showed a case of Senile Urticaria Pigmentosa of 15 years' duration in a man aged 68. The condition, well seen on the arms and trunk, consisted of closely-set macules and plaques, the latter up to two shillings in size, pink, red to deep violet, disappearing on deep pressure. The duration of the individual lesions varied from half an hour up to several months. Factitious urticaria was marked, itching very slight. As the disease is usually limited to very early life, this case was not at first thought to be urticaria; the diagnosis lay between that and the erythemas. The patient was examined by Dr. Wallace Beatty, who had a similar case in an adult in 1919. Sections of skin were examined by Dr. W. D. O'Kelly, who reported the presence in large numbers of mast cells in the skin,—a condition regarded as pathognomonic by Brock, Unna of Hamburg, and Gilchrist of Johns Hopkins Hospital. The patient suffered also from auricular fibrillation and was treated by Dr. G. Nesbitt, who showed slides of tracings taken to demonstrate the condition.

Dr. BEATTY stated that he had seen a similar skin condition in 1919 in a healthy man of 32, the trunk and extremities being affected; duration ten years. Condition had been first noticed on the upper part of the chest, and spread gradually—the face, hands, and feet being spared. There was no irritation. The majority of spots were brownish in colour and not altered by pressure. At first sight the condition suggested a syphilide, negatived by history and duration. According to Darier it usually occurs in infants, and tends to disappear in eight to ten years. In 1905, at the French Society of Dermatology, the speaker had stated that the affection might begin in adult life, and was often a family condition. He had then showed slides of microscopic sections of skin showing numerous mast cells, also photographs of the condition in adults and in an infant.

Dr. WALTER SMITH objected to the name senile urticaria pigmentosa.

Dr. O'KELLY stated that he had never seen such large numbers of mast cells packed with basophile granules. There was no special distribution of the cells.

Dr. W. M. CROFTON suggested that cultures should be made from fluid obtained by blistering affected areas.

Dr. E. M. MAXWELL then showed a patient with Pituitary Tumour and Dr. H. F. MOORE read a paper on Diabetes Mellitus with Acidosis.

SECTION OF OBSTETRICS

A MEETING of this section of the Royal Academy of Medicine in Ireland was held recently, when Dr. E. H. TWEEDY, the President, read a paper on

Tubal Sterility.

The PRESIDENT showed his instruments for passing catgut through the tube. He said that a fine stiff needle with a blunt point should be used. It should pass first through the ovary, where the catgut should be knotted, then through the tube, and then through the mucous membrane. Mucous membrane should be sewn to mucous membrane. In every case of sterility the tubes, even though apparently normal, should be tested for permeability by the air test. The impervious part should be cut away. It had been suggested that the short tube would prevent pregnancy, but he had seen pregnancies in women whose tubes were certainly not more than 1½ inches long.

Dr. B. SOLOMONS said that Dr. Tweedy had dealt not so much with tubal sterility as with sterility in women with long tubes. He would feel very diffident about resecting tubes just because they were long. He blew them up with air when there was a kink and resected them not on account of length but because of disease. In excision for length did Dr. Tweedy get the excised part examined microscopically? The removal of the uterine ends of both tubes in these cases was a big undertaking in view of the difference in bore of the parts to be brought into apposition, that of the smaller end being only 1/25th of an inch. The instruments, he thought, would prove very useful. When resecting a tube he did not use forceps, but had special needles, the ends of the tubes being held one by him and one by an assistant, in an end to end anastomosis. But Dr. Tweedy was dealing with resection of the uterine ends of the tubes. This question of sterility embraced all the pathological conditions in the tube. Since October, 1919, he had seen many cases to prove that the tubes were usually at fault—many without gross lesions. It was difficult to know what to do in these cases. If the abdominal end was diseased, a new osteum should be made and the fimbriated ends removed, if the middle part, an end to end anastomosis, for which he used a long straight needle, resecting the tube when catgut had been passed through the lumen. In cases of disease of the uterine end the prognosis was very bad, especially if the condition was bilateral. He wanted to know what part of the ovary the catgut passed through before going through the tube, and if this step were necessary. He thought any ova in the neighbourhood should find their way into the tube without help.

Dr. S. SHEILL said that the first thing to prove was that a woman was really sterile, or successes might be claimed which were not earned. He was not sure that dilatation of the tubes with air was a sufficient test of the condition of the tubes. The only proof of sterility was a microscopic examination of the parts removed. With regard to the passage of the needle, if a false passage were made at the uterine end, it was possible that the epithelium would follow this false passage, especially if chromicised gut were used instead of ordinary six-day catgut.

Dr. H. JELLETT, the Master of the Rotunda, said that the apposition of the wide and narrow parts of the tube was the great difficulty.

The PRESIDENT, replying, said he hoped that by next year the technique of the operation would be greatly improved. Dr. Solomons dealt with the long tube. What he said was not that a long tube should be resected, but that a long tube which was obstructed, as most long ones were, should be resected. He had observed the greatest difference in the calibre of tubes in different individuals. As regarded the microscope test, serial sections would have to be taken of the 1¼ inches of tube removed, and the obstruction might only be $\frac{1}{100}$ of a millimetre. He thought the method employed by Dr. Solomons would lead to tubal pregnancy, as it had done in one case already, and also in one of the speaker's own cases where this method was employed. He described this case, in which he resected one tube for concretions, the other being fairly normal. The patient had a fixed retroversion. An end to end anastomosis had been done, and the patient returned to Steevens' Hospital still sterile. The abdomen was opened, and the anastomosis was found to have given way and the lumen to be closed. The tube was again resected and the woman appeared at the Rotunda Hospital with a tubal pregnancy on the side of the resected tube. It was possible to pass a big sound through the fimbriated extremity to the uterus, and the probe could pass over the ovum into the uterus. The other tube would not let anything through, therefore the technique was at fault. A continuity of epithelium was absolutely necessary.—Dr. SHEILL asked, if that were so, why did not ligating the tubes for the purpose of making the woman sterile prove successful?—The PRESIDENT: No such case had been reported in Dublin. Dr. M. J. Gibson and Dr. Solomons both got cases of tubal pregnancy. He used to agree with Dr. Solomons that this was due to inflammation, but now believed that the lack of epithelial continuity was at fault. Blair Bell had had a case of pregnancy after stitching the fimbriated extremity to the cornu of the uterus.

ROYAL MEDICO CHIRURGICAL SOCIETY OF GLASGOW.

Exhibition of Cases and Specimens.

A MEETING of this society was held on April 16th, Mr. A. ERNEST MAYLARD, the President, being in the chair.

Dr. G. HERBERT CLARK showed the two patients referred to in his communication to the society[1] of March 19th.

Dr. J. SCOULER BUCHANAN and Dr. WALTER W. GALBRAITH showed two cases of Articular Effusion into Both Knee-joints due to Congenital Syphilis. In the first case, that of a previously healthy boy aged 11, the only symptom had been a feeling of tiredness in the legs with little or no pain and swelling of the knees without tenderness or restriction of movement. However, he showed keratitis fissures about the mouth and pegged teeth. Both he and his father gave a positive Wassermann. In the second case, a boy aged 13 years, stiffness and swelling of the knee-joints were first complained of after a fall from a height on to his knees. Beyond a slight degree of "sabre blade" tibiæ the boy showed no evidence of congenital syphilis but both he and his father gave positive Wassermanns, and his mother gave a suspicious reaction.

Mr. ARCHIBALD YOUNG showed a case of Volkmann's Ischæmic Contracture of the Forearm, treated by manipulation and splinting. The patient, a boy, aged 11 years, was admitted to hospital in March, 1918, for a simple fracture of both bones of the forearm slightly above the middle. The arm and forearm were put up on an anterior (flexor) splint of moulded metal bent at right angles at the elbow (the forearm being fully supinated), supplemented by a corresponding moulded poroplastic splint applied to the extensor aspect of the forearm only. Six days later, on account of pain at the elbow and disability in finger movements, the splints were removed and put up less firmly. By March 22nd there was well-marked tendency to contracture of the fingers, and in spite of massage and passive movement, by Oct. 26th the patient had well-marked ischæmic contracture (Volkmann) and atrophy of all the muscles of forearm and hand, and was readmitted to hospital. Under an anæsthetic the four fingers were separately stretched and fixed fully, or almost fully extended, in individual moulded splints made of sheet tin, covered with lint. Maintenance of the palmar flexion of the wrist was obtained by a long metal splint and fixed on the extensor aspect of forearm and hand. A fortnight later the splints were readjusted, flexion at the wrist reduced, and extension at the metacarpo-phalangeal joints increased. After another fortnight a similar process was carried out. Twenty days later the fingers and wrist were freely manipulated and splints reapplied with the contracture almost fully corrected, and 16 days later the special finger splints were discontinued, a splint dorsiflexed at the wrist being applied on the palmar aspect of forearm and hand. Each readjustment of splints was carried out under general anæsthesia. Less than a week later this long splint was also removed and massage and electrical treatment were instituted. More than a year later the function of the limb was very good, but there was still disparity in muscular development of the two forearms, particularly as in the flexor pronator groups. There had been slight recurrence of the contracture, mainly of the flexor profundus. The speaker said that it might yet be desirable to renew the splinting for a time, but the final result would be most satisfactory.

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[1] THE LANCET, April 10th, p. 817.

The PRESIDENT showed a specimen of Maier's Funnel-shaped (Trichterförmig) Hypertrophic Stenosis of the Pyloric Orifice removed by operation from an adult. The patient, a woman aged 36, was very thin, with abdomen somewhat distended, and a firm, movable mass, rather tender, palpable in the right iliac region. She gave a history of rapidly increasing emaciation, constipation, and latterly of pain in the right hypochondrium, followed by vomit shortly after taking food. On operation a freely movable pyloric tumour was found, associated with a greatly dilated stomach. In the belief that this was a growth, the pylorus with half the stomach was excised, and a posterior gastro-jejunostomy performed. The patient did well for four days, but later died of double pneumonia. The pathological report on the specimen stated that there was stenosis of the pylorus with marked hypertrophy of the muscular ring; no evidence of new growth or of recent or healed ulcers. Microscopical examination showed regular tubular glands and hypertrophy and a diffuse interstitial fibrosis of the muscular tissue.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.

Expectant Treatment in Eclampsia.

A MEETING of this society was held at Leeds on April 16th, Mr. MILES H. PHILLIPS, the President, in the chair, when Mr. W. GOUGH (Leeds) gave an analysis of 61 cases of eclampsia at the Leeds Maternity Hospital during the last ten years. The average age of the patients, of whom 47 were primiparæ and 14 multiparæ, was about 26 years. Multiple pregnancies occurred three times and hydatid mole once; in one case only was there a history of previous eclampsia. Mr. Gough brought this subject before the society with a view to advocating the expectant method of treatment. In 5 cases the pregnancy was artificially terminated, and of these 2 died. In the remaining 56 cases the only treatment adopted was expectant, on the lines advocated by the Dublin and Glasgow schools. In a few cases delivery was hastened by forceps late in the second stage, but this was the only operative treatment. In 9 cases the fits commenced post partum, and of these 1 died. Of the remaining 47 cases 5 died, excluding 1 case where death was caused by a perforated gastric ulcer. As regards the children, in the cases where labour was induced, one child was born alive and four stillborn. Where no operative interference was carried out 24 were born alive and 21 were stillborn; in one the pregnancy was a hydatid mole, and the remaining case recovered from her eclampsia and went home undelivered. Mr. Gough was therefore convinced that much better results were obtained for both mother and child if labour was allowed to come on spontaneously.

The PRESIDENT congratulated the Leeds Maternity Hospital on their excellent results. The maternal mortality was much lower than any figure he had seen published hitherto. At the Jessop Hospital, Sheffield, Dr. J. Chisholm had looked up the cases and found that the mortality over a similar period was nearly 25 per cent., the total number of cases treated being 177. However, it varied very much from year to year. He thought Cæsarean section good treatment in carefully selected cases, and had obtained several very satisfactory results therefrom.

Dr. J. W. BRIDE (Manchester) had analysed the cases treated at the St. Mary's Hospitals, Manchester. During the last ten years 220 cases were admitted, and the mortality was nearly 33 per cent. The figure varied much from year to year, in one year being as low as 12 per cent., and it was of interest that in that particular year the pregnancy was generally terminated by rapid dilatation of the cervix and immediate extraction.

Dr. J. B. HELLIER thought that Cæsarean section was sound treatment if carried out by competent operators and in suitable surroundings. Where this was not possible the expectant method was much safer.

Dr. DANIEL DOUGAL (Manchester) was of the opinion that cases varied so much in type that one method of treatment was not always the best. He had tried Cæsarean section with disappointing results in cases chosen because of their severity. He thought it possible that Cæsarean section might give the best results if carried out in every case at an early stage of the disease.

Dr. GOUGH briefly replied.

AN ordinary meeting of the West London Medico-Chirurgical Society will be held to-day (Friday) in the society's rooms, West London Hospital, at 8.30 P.M., the President, Dr. Herbert Chambers, in the chair, when a paper will be read by Mr. Sydney G. MacDonald on Tuberculous Affections of the Urinary Tract.

Reviews and Notices of Books.

GYNÆCOLOGY FOR STUDENTS AND PRACTITIONERS.

Second edition. By T. W. EDEN, M.D., F.R.C.S. Edin., F.R.C.P., Obstetric Physician, Charing Cross Hospital; and CUTHBERT LOCKYER, M.D., B.S., F.R.C.P., F.R.C.S., Obstetric Physician to Outpatients, Charing Cross Hospital. London: J. and A. Churchill. 1920. With 513 illustrations and 24 coloured plates. Pp. 928. 38*s*. net.

IN the revision of the second edition of their book the authors have added to the section on ovarian gestation. Stress is laid on the distinctive naked-eye appearances of an ovarian molar pregnancy, especially on the sharp line of demarcation between the cap of ovarian tissue overlying the mole, a dark plum-coloured cyst with smooth walls. A description has been added of epispadias, hypospadias, and ectopia vesicæ in the female. A section is also devoted to a description of the operative procedure appropriate for a case of epispadias. There are some alterations in the section on ectopic gestation, including an account of the rare occurrence of a multiple pregnancy in an ectopic gestation.

In considering the after-results of the operation of extended abdominal hysterectomy for cancer of the cervix the authors call attention to Weibel's statistics showing that recurrences may take place in some 7·7 per cent. of such cases between the period five to seven years after the operation. They estimate the relative percentage operability of vaginal hysterectomy to that of the extended abdominal operation at about four to one. Some new matter has been added in the section dealing with the enucleation of broad ligament cysts. In our opinion, if it is necessary to drain through the posterior vaginal fornix because the bleeding cannot be completely controlled, it is better to use a gauze plug rather than the rubber tube recommended by the writers. The operative treatment for dealing with a rectocele has been inserted and a few minor alterations in response to some criticisms on the first edition have been incorporated. There are five new coloured plates illustrating unruptured tubal pregnancy and a retro-uterine hæmatocele, kraurosis vulvæ, erosion of the cervix (the legend spoilt by the needless addition of the misleading name pseudo-adenoma), endocervical and corporeal cancer, and a fine plate of a lipoma of the broad ligament.

A very good book, but—we must add—unfortunately growing too large for the student to read, even if not too large for the specialty with which it deals.

A TEXT-BOOK OF OPHTHALMIC OPERATIONS.

Second edition. By HAROLD GRIMSDALE, M.B., F.R.C.S., and ELMORE BREWERTON, F.R.C.S. London: Baillière, Tindall, and Cox. 1920. Pp. 438. 18*s*.

THERE are two objects which a book of this sort may be expected to fulfil: first, fully to describe those operative procedures which the author as the result of his experience believes best calculated to attain the desired ends; secondly, to give an intelligible though not detailed account of so many of the other operations which are practised or have been described as may conceivably be of use to the ophthalmic surgeon. A book such as Meller's, in which the former object is prominent, makes the more interesting reading, but the latter object has its importance also. The young ophthalmic surgeon, if he is wise, will never undertake an operation without taking trouble to understand the advantages and drawbacks of the various procedures and modifications adopted by different operators. In the second place, having decided on the particular method which he means to adopt, he will read up a full description of this method, not entirely trusting to any text-book but consulting original papers. The extent to which the text book of Grimsdale and Brewerton attains this double object is very considerable, and it is not the least of its merits that at the end of each chapter a list of references is given to the original descriptions of the operations summarised in the text. This feature cannot fail to be useful to every ophthalmic surgeon who has access to a library.

The first edition of this book appeared in 1907, and the advance in the technique of ophthalmic surgery amply justifies a new edition. There is not a chapter in which new matter of importance is absent. The great advances in the operative treatment of glaucoma in recent years have necessitated the entire rewriting of this chapter. The new methods for dealing with contracted sockets by means of "epithelial inlays" and for providing new eyelids by means of "epithelial outlays," which were evolved during the war, are also described. The removal of foreign bodies from the interior of the globe is another subject on which much experience has been gained during the war, and a new chapter describes the methods of using Haab's magnet, the ring magnet, and the small magnet

In all, some ninety pages of new matter have been added, but the book remains eminently practical, and scant space is devoted to operations, which, in the authors' opinion, are useless, such as many of those devised for the cure of detached retina The illustrations are diagrammatic but intelligible. We could wish for more pictorial help in the case of some of the more important operations, notably trephining for glaucoma The book is a good and practical guide to operative procedures on the eye

LA GÉNÉRATION HUMAINE.

Ninth edition. By Dr. G. J. WILKOWSKI. Paris A. Maloine and Son. 1920 With 3 coloured plates and 108 illustrations in the text Pp 224. Fr 22

THE ninth edition of this popular work has been brought up to date by the inclusion of recent advances in our knowledge of the anatomy and physiology of the urogenital system A postscript on organo therapy has also been added, and we gather from this that our French colleagues have utilised the various glandular extracts to a far greater extent than we have Unfortunately we cannot comment on the success which has attended their efforts, for the results are not recorded.

The author is careful to point out that the book is not intended to replace the usual text books on the subject, and as an adjunct to them we feel that this book is most useful. The fact that it has been translated into Spanish and Finnish shows that its popularity is not confined to France. Historical anecdotes abound in the work, and make it more attractive than the ordinary text books on the subject The illustrations are good and the coloured plates excellent

HANDBOOK OF ANÆSTHETICS.

By J. STUART ROSS Edinburgh E and S. Livingstone 1919. With illustrations Pp 214 7s 6d

ALTHOUGH there are many little books on anæsthetics this addition to their number is welcome, for it is eminently readable. It is less taken up with detailed description of apparatus and of procedure than are most similar works, and for this reason is more pleasant to peruse though, perhaps, it loses in the same degree in usefulness to the beginner. The general principles which should guide the anæsthetist are clearly laid down, and he is made to understand them by an excellent account of the physiological knowledge on which those principles are based. In this chapter the author draws attention to a fact that is often overlooked. In describing the fall of blood pressure that accompanies narcosis he shows how this is due to some extent to the anæsthesia, comparable with the fall in natural sleep, apart from the action of the anæsthetic drug *per se*. Profiting by recent experience Mr. Ross gives an account of the treatment of shock among the casualties of the war. Discussing the causation of stridor the author expresses his belief that it may be due to morphine given prior to anæsthesia. He gives a capital account of the causation and the prevention and treatment of asphyxia. Mr. Ross evidently values and uses frequently the mixture of chloroform and ether (C_2E_3), and gives detailed directions of the correct way to employ it in conjunction with and in aid of "open ether." He approves of routine administration of morphine and atropine before anæsthesia In the account of rectal administration of ether he does not, we think, lay stress enough on the slowness with which the injection should be given, and on the time that should be allowed to elapse if the best result is to be obtained The mixtures of nitrous oxide and ethyl chloride have a small chapter to themselves. They appear to be more in favour in Edinburgh than in most other places, yet they are of undoubted service in dental practice, and might be more frequently employed with advantage Brief chapters on local and spinal anæsthesia are contributed by Dr. Quarry Wood, one on intratracheal anæsthesia by Dr Torrance Thomson, and an introduction by Dr Alexis Thomson.

HANDBOOK OF PHYSIOLOGY.

Fifteenth edition By W D HALLIBURTON, M.D., LL D, F R C P, F R S, Professor of Physiology, King's College, London London John Murray. 1920. With nearly 600 illustrations in the text, many of which are coloured, and 3 coloured plates Pp 936. 18*s*.

THE last edition was issued in 1919, and about nine months thereafter the author received an urgent request to prepare another and this is the result The new anatomical nomenclature and the appendix on War Diet (the latter written in July, 1918) are still retained. The author states that the changes are of "a minor kind." This we substantiate after comparing generally the present edition with its immediate predecessor The number of pages, the pagination, and number of illustrations are unaltered. The only change in illustrations we noticed is on p 337, where a figure of the structure of the thyroid and parathyroid gland is substituted for one of the thyroid As to the text itself we have been able to discover only very minor changes, such as those on p 342, on the suprarenal gland, on p 464 a slight change in the description of hæmopyrrol, and a few lines added on p 504 about reflex secretion. The reference to vitamines on p 905 of both editions is not mentioned in either index Obviously this work retains its well deserved popularity, and it is well entitled to, even though we failed to find an exposition of the more recent discoveries about "shock," intravenous injection of gum arabic, or any references to the work of Cushny on renal secretion

LA PHYSIOLOGIE

Par MAURICE ARTHUS, Professeur de Physiologie, Lausanne. Paris. Masson et Cie 1920. Pp 430. 10 francs.

THIS is in no sense of the word a text book, nor does it pretend to replace or even complete such a work, rather is it written to expound the actual state of the science, to mark its successive stages of development, its methods, its results, and to indicate the lines along which progress in the future is to be anticipated The author found his inspiration one day long ago in the romantic region of Sainte Geneviève, in the Quartier Latin, on reading Claude Bernard's "Lectures on Physiology Applied to Medicine" First the bald anatomical facts and the obvious movements of the body as they can be observed and studied by the unaided eye are attractively and clearly described—the chiefly physical facts being first dealt with—movements of the pupil, respiratory, heart, intestinal movements, and so on. Then follows the application of the graphic and photographic methods to the study of mechanical facts. The experimental method and its results are described, the importance of the animal selected being emphasised. Much attention is given to the effects, immediate and remote, of removal of organs, the suppression and modification of the functions of organs by drugs, cutting off the circulation, and other means. Excitation and stimulation of various kinds and of different organs are described, and then various "experimental devices," such as fistulæ, grafting, and their results. In this chapter the author describes Beaumont's famous observations on Alexis St. Martin, as being made by "Elie de Beaumont," a strange mistake for plain William Beaumont. After experimentation come interpretation and explanation of the results, with numerous instances and astute discussion and examples of analysis of experiments. A short excursus is made into the realm of pathology, cell life, physico-chemical phenomena, nervous and humoral mechanisms, including the hormone doctrine, and so on to the study of intoxications, which chapter brings this charming exposition to a close. The work is written in such clear, idiomatic, easily understood language, that it might well be read by anyone wishing to improve his knowledge of French, apart altogether from the fascinating coup d'œil which it gives of "la Physiologie" as the basis of medicine and hygiene. French writers have a genius for lucidity, but M. Arthus possesses this admirable quality in quite an exceptional degree. We have enjoyed both its comprehensive and critical survey and its lucid exposition.

PHYSIOLOGIE NORMALE ET PATHOLOGIQUE DES REINS.

Second edition. Par L. AMBARD, Professeur à la Faculté de Strasbourg. Paris: Masson et Cie. 1920. Pp. 368. 18 francs.

THE general plan of this monograph remains the same as when it was reviewed in THE LANCET of July 11th, 1914. The title might lead one to suppose that Professor Ambard had written an ordinary text-book on renal function. Not so, for this is rather a personal contribution to certain aspects of the subject. There is an extensive array of observations made by the author himself and some of his colleagues, first on the physiological side as to elimination by the kidneys by a process of diffusion of various alcohols, acetone, and chloroform, and more especially of experiments to determine the maximum concentration of urea, and the limits and variations of elimination by secretion of ammonia, iodine, SO_4, methylene-blue, glycerine, glucose, chlorine, water, and other substances. The author attempts to find a mathematical expression for the limit regulating the extent of each of these excretions, and seeks to explain how excrementitious substances do not accumulate in the blood, and how the blood maintains nearly a uniform composition. To this end the kidney is an organ which acts for the most part autonomously; indeed, as if it were not in relation with the central nervous system. About one-half of the text is devoted to various forms of nephritis; the author abandons the old histological classification and adopts that of Widal, which is explained in the text. The phenomena attending nephritis with œdema, azotemic nephritis, and mixed forms of nephritis are described, together with data for their prognosis. A short but important chapter which should be studied by surgeons is that devoted to the exploration of the renal functions in urinary surgery. This monograph embodies a large amount of research along specific lines, and is intensive rather than extensive in its application to clinical medicine, and as such will be specially interesting to those whose work lies in the domain of diseases of the kidney.

ANNALS OF MEDICAL HISTORY.

Vol. II., No. 2. Summer Number, June, 1919. New York: Paul B. Hoeber. Pp. 93–212. $2.50.

A PUBLISHER'S note informs us that "the publication of this issue has been greatly delayed by the recent printers' strike in New York City," which accounts for a somewhat belated notice of the same. The greater part of the number is devoted to papers dealing with Sir William Osler, who attained his seventieth birthday in July, 1919. Three of the papers, written during Osler's life, are respectively by Dr. Howard Kelly, Dr. John Ruhrah, and Dr. Fielding H. Garrison, and set forth the reasons why there is such a widespread desire to commemorate Osler's seventieth birthday, his influence on medical libraries, and his contributions to medical literature. In the fourth Dr. Harvey Cushing is able, owing to the delay in publication of the journal, to set before its readers a "laudatio" of Osler which is an admirable picture of the man and one, moreover, which shows that the biographer has no small portion of his subject's spirit. All the other articles contributed to the number under review are good, more especially "A House Surgeon's Memories of Joseph Lister," by Sir StClair Thomson, Sir D'Arcy Power's "The Oxford Physic Garden," and Major Reginald Fitz's "Napoleon's Camp at Boulogne." The last paper, with its interesting account of the medical organisation of the camp, shows yet once more Napoleon's astonishing faculty for taking pains about details.

THE MISADVENTURES OF ATHELSTAN DIGBY.

By WILLIAM FRYER HARVEY. London: The Swarthmore Press, Ltd. 1920. Pp. 191. 6s.

Athelstan Digby is a prosperous Yorkshire manufacturer, a bachelor, and a good citizen, whose keen enjoyment of life and undiminished mental energy at 55 years of age lead him into all kinds of innocent and entertaining adventures. The interest of the book from the medical point of view is the internal evidence that the author is himself a medical man. The comparison between the dietetic habits of the squire who "drank port, and his headaches were in the morning," with Digby's brother who, "a teetotaller and a somewhat immoderate eater. usually had his headaches at night," betrays professional knowledge as well as the description of the circumstances which led up to Mr. Digby passing an hour or two on a stretcher in the hospital mortuary, where "Simeon" performed operations, "very neat; large, clean incisions, and no anæsthetics." The book will agreeably fill up a leisure hour.

THE LINK BETWEEN THE PRACTITIONER AND THE LABORATORY.

By CAVENDISH FLETCHER, M.B., B.S. Lond., and HUGH McLEAN, B.A., B.C., D.P.H. Cantab. London: H. K. Lewis and Co. 1920. Pp. 91. 4s. 6d.

THIS little book is intended to guide the practitioner in his relations with the pathological laboratory. The diseases whereto pathological examinations are applicable are arranged in alphabetical order, and the various tests are cited with directions as to collection of specimens, the minimum times which should be allowed to the laboratory in cases of urgency, directions as to postage and packing, and so on. On the whole, the advice given and choice of tests are sound, although a number are quoted which are by no means generally accepted by pathologists of standing, such as the Arneth count and the determination of the coagulation-time of the blood. The presence of the pathologist at the bedside is advised in certain cases, but the essential value of making cultures direct from the lesion is by no means always clearly emphasised, a most vital matter in cases of influenza for instance. The influenza bacillus only lives for about half an hour outside the body. Very false ideas of the relative proportions of germs in culture may be arrived at in posted specimens. Mackey[1] found that immediate plating of post-nasal secretion yielded pneumococci 1000 colonies and 8 colonies of staphylococci, whereas the same swab posted and plated next morning yielded almost exactly the reverse proportions. When the pathologist comes to prepare his vaccine the importance of early plating is at once apparent. The initial vaccine doses recommended at the end of the book are in some cases obsolete; 2½ millions of pneumococci is one of these. Staphylococcal and gonococcal sera are, we believe, also useless therapeutically.

However, a book of this kind is badly needed. The present volume is fairly up to date, especially on the chemical side, although it does reveal, in all its nakedness, the failings of any scheme where the pathologist and his laboratory are not in close proximity to the practitioner and his patient.

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[1] Mackey, J. F.: Brit. Med. Jour., August 9th, 1918.

THE LANCET.

LONDON: SATURDAY, MAY 8, 1920.

The Human Side of Industrial Efficiency.

PROGRESS in human affairs, if it is to be sure, must be based upon knowledge, and three stages are required to ensure advancement. First, knowledge must be acquired by laborious and painstaking research and investigation; then the knowledge acquired must be made known to those who can use it; lastly, it must be given practical application. Each step is of equal value to progress, whether that progress be economic, political, industrial, or medical. Not infrequently the acquirement of knowledge through research proceeds without reaching the field of practical application and, lying hid, becomes barren of results until, maybe at some distant date, it is dragged into the light of day. For this reason the double step of making known to the research worker what problems require elucidation, and of making known to those who want the knowledge what the research worker has found out, is one of fundamental importance. Yet for the most part it is not taken in either direction. A feeling is abroad to-day that, quite apart from the inconsistencies in the body-politic which have sprung up in modern society as a result of the industrial revolution, much ill-being and discontent exist which are due to lack of scientific knowledge as to the working of the human machine. "The living human body is surely," said Sir JAMES PAGET, "the most complex mass of matter in the known world"; it reacts in unexpected ways to new conditions; and has a habit of protesting vigorously when these conditions disturb the rhythm of existence. It reacts not merely as a physiological unit, but as a psychological entity, and must be studied from both points of view. The field of national welfare most concerned is that of industrial employment; in the past the attention of those who control the practical side of industry has been concentrated upon the processes of production, the invention of machinery, the improvement of plant, to the almost entire disregard of any study devoted to the human agency required to animate the whole. Here is vast promise of additions to knowledge. Research is in the first place needed into the working capacity of man, his liability to fatigue and to consequent ill-health, his physiological and psychological reactions to environment as represented by fresh air, hours of work, personal hygiene, cleanliness, and temperature. Action in this direction is already assured in this country through the work of the Industrial Fatigue Research Board, which is now definitely established and attached to the Medical Research Council. Thus we are in a better position than other countries. France, it is true, has appointed the Institut d'Hygiène Sociale and the Direction des Recherches Scientifiques to carry on work, but the activities incline to be restricted to laboratory experiments. In America the early promise given by the appointment of a Committee on Industrial Fatigue is not bearing fruit; information, the result of inquiries conducted in various industries by the investigators of the Board, is being published from time to time; but the seed falling by the wayside will be wasted unless steps be taken to cultivate it by organised effort.

We therefore learn with pleasure that steps are to be taken to this end, and that a National Institute of Psychology and Physiology applied to commerce and industry is being established. The position proposed for the institute is somewhat similar to that held by the National Physical Laboratory in relation to physical science, and the Royal Society at a later date may be asked to assume ultimate control. Close coördination with the Fatigue Research Board is promised, and should be assured by the presence among the supporters of the Institute of several members of the Board. Indeed, it is no secret that the Institute owes its inception entirely to the activities of certain members of the Board, and particularly of Professor C. S. MYERS. The promoters of the Institute are now appealing to industry for financial support, and this ought to be readily forthcoming, for there exist here possibilities of incalculable value to employers and employed. The Institute, we learn, is not established for profit, but all funds are to be used to promote a more effective application of national energy, and a correspondingly higher standard of comfort and welfare for the worker. The medical profession, with vision for a healthy race, cannot fail to be keenly interested in this new venture. If successful in reducing only to some small extent the wear and tear of daily industrial toil, it will proportionately leave the resisting power against ill-health and disease stronger, lessen the proportion of deaths in the prime of life, and lighten the heavy burden of preventable invalidity. Although, and at first sight, the title, aims, and objects of the Institute seem to apply only to industrial affairs, properly conceived we have here a most practical venture in the realm of preventive medicine. To study the economics of the human machine; to fit individuals according to their capacity into occupations for which they are naturally adapted; and to recognise and deal with the first symptoms of disability before a diagnosable syndrome of disease appears—these things must be of incalculable value to industry and commerce, and, incidentally, they will lay down principles and establish standards applicable to every phase of life. Here we have preventive medicine as an economic asset in daily life brought boldly into the regions of industrial profit and loss.

The programme of the institute is so extensive as to make us wonder at the moderation of the promoters in only budgeting for an expenditure of £10,000 a year. The establishment of well-equipped laboratories is proposed to investigate motion study and rest pauses, mental and muscular fatigue, and selection of workers, and in them statistical research will be conducted. Training courses and lectures are to be provided; investigations undertaken in industrial establishments; the health, comfort, and welfare of workers are to be studied; propaganda work is to be set on foot. Clearly, all cannot be carried out at once. We note, therefore, with approbation, that at the outset special attention will be paid to devising tests of individual mental and physical ability, so that each person may be advised as to the occupation for which he is best fitted. Our present methods of choosing life's work are confessedly imperfect. A father compels a reluctant son to adopt the parental job; some passing boyish fancy or temporary friendship influences a lad to make a wrong start; local demands for labour decide the choice for many, and so the process of trial and error, of hit or miss, goes on. The result is seen in the migration of labour from factory to factory, from mine to mine, from ship to ship, a migration annually equal in numbers to the whole of the working population; a result in itself eloquent of discontent, and representing an appalling economic loss in efficiency and in happiness, that happiness which Comte stated consists in doing the work for which we are naturally fitted. If the Institute only succeeds in this one matter it will abundantly justify its existence, and will do more to banish discontent and assure health—that health upon which human power depends—than any other social or economic activity. Searching for knowledge of man with one hand, and giving knowledge practical application with the other, the Institute might well choose Bacon's words for its motto, "Human knowledge and human power meet in one."

The Anæsthetist's Guerdon.

It seems clear, from the correspondence recently published in our pages, that there is a good deal of dissatisfaction felt by anæsthetists at the present time, but the remedy is not equally obvious. It is natural, of course, that the anæsthetist should find it necessary to raise his fee in accordance with the raised cost of all the necessaries of life, and here his necessity is only the same as that of large numbers of practitioners who have in various quarters publicly announced a rise in their charges to meet the advanced cost of living. This does not, however, appear to be the whole or even the chief reason which has set anæsthetists considering the subject of their fees. They suffer under certain difficulties, which are peculiar to their branch of practice, and which tell financially against a form of practice which has never been highly lucrative. Never, indeed, nearly so lucrative as its peculiar risks and demands appear to us to justify it in being. Some of these obstacles are, as Dr. Llewelyn Powell pointed out, unavoidable, and the chief of these is the number of appointments which an anæsthetist is obliged to refuse owing to the choice of time for operation not resting with him. Consequently he is often already engaged for the hour at which his services are requested, and the case is lost to him. This is a contingency which affects no other kind of medical man to anything like the same extent. Even here, though, we would venture to point out that the remedy is partly in the anæsthetist's own hands. He may make himself so desirable that either the surgeon or the patient will change the time rather than lose the anæsthetist of his choice. And, in fact, this we know happens in a good number of instances.

There is another direction in which the anæsthetist is apt to suffer. This lies in the duplication, so to speak, of responsibility towards him. Sometimes the surgeon, sometimes the general practitioner, and sometimes the patient, is responsible for the anæsthetist's fee. Very often the anæsthetist does not know which of the three it is, and he may find himself equally neglected by all. Again, it often happens that he is not consulted about the subject of his fee, and he may be presented later with a sum that does not at all represent his own ideas in the matter. Obviously, the anæsthetist should have the opportunity of naming his own fee, unless he is working with men whom he knows to be fully acquainted with his usual practice. The practical difficulty here often is that the practitioner or the surgeon, arranging the matter with the patient beforehand, has to include the anæsthetist. If he does not know him, and has not, as may well be the case, the time to communicate with him, he may easily misrepresent to the patient the expectations of the anæsthetist. Yet even in this case error should not be very serious, for surgeons and practitioners are well aware of the general custom as regards anæsthetists' fees. That this custom has hitherto been too niggardly we are strongly of opinion. The day has gone by when the anæsthetist, if he be a man who has devoted himself specially to this work, should count merely as an assistant and be remunerated on some such scale. His duties and those of the assistant at the operation differ in essential particulars. The anæsthetist has much and the assistant little or no responsibility. He acts directly under the guidance of the surgeon, but the surgeon rightly expects the anæsthetist to conduct his part of the case on his own initiative and responsibility, and looks to him, as part of that responsibility, to preserve the patient's safety, and to warn the operator of any encroachment upon it. The anæsthetist is held wholly, or partly, responsible for "regrettable incidents" that may attend on or follow operations. His remuneration should, in justice, be commensurate with his anxious position.

In attempting to arrive at a general principle upon which to fix the anæsthetist's fees some correspondents suggest that these should bear definite proportion to the surgeon's fee. This would, no doubt, supply an easy guide, but there are many instances in which it would, we think, provide a false standard. An operation may be short and easy, yet the condition or the physique of the patient may render the administration of the anæsthetic as difficult as can be imagined. The surgeon might justly demand in such a case a small fee for a small operation. The anæsthetist would obviously be hardly treated if his fee fell in proportion. Only in one element—that of time—is it possible to assess the surgeon and the anæsthetist fairly together. Both are naturally to be paid more the longer their services are required. We have glanced at a few of the difficulties which will occur to anyone who has read our correspondents' letters. We do not attempt to offer a solution, for we are convinced that by conversations with one another and with surgeons, anæsthetists should themselves provide a remedy for defects in the arrangements under which they practise. A modern writer has observed that the calling of the anæsthetist is "an honourable but not a fertile one." We know that it will remain honourable, and we hope to see it become more fertile.

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Pellagra and Diet.

EVEN the devastation of war may bring benefits to the human race. Among the solid advantages can be reckoned improved understanding of the biological values of foodstuffs. The part played by the building-stones of food, in the shape of proteins, carbohydrates, and fats, and the causation and avoidance of food-deficiency diseases have been studied with close attention and valuable results during and because of the war. The existence and importance of vitamines had, it is true, been demonstrated some 10 years before the war, and 10 years earlier still work on the etiology of beri-beri had prompted physiologists to study deficiency diseases. But the war has quickened all these studies, and pellagra is now receiving further and intensive scrutiny. Pellagra is an old and widespread scourge, obscure in origin, and long suspected of some relationship to underfeeding. Our military operations in Syria have brought to our notice large numbers of pellagrins amongst the prisoners. Given the material for study the British army has furnished many willing students. Few more exhaustive scientific investigations have been accomplished than those made by the Committee of Inquiry regarding the prevalence of pellagra among Turkish prisoners of war. The report of that Committee, summarised on p. 1027, contains definite negative and positive conclusions as to the causes of pellagra. The absence of proof of case-to-case infection or of location or local infection is of great moment. So, too, are the negative findings as to bacterial or protozoal infection. We come next to the positive conclusions. They are interesting, even if they bring us only to the threshold of new ideas and notable discoveries. Here is a disease in which it is suggested upon reasonable evidence that a prime factor is defective protein-supply to the body, and further, that protein-starvation may conceivably occur, even though an adequate quantity of protein is ingested. Admitting this to be possible, does pellagra depend on the quality of the protein, upon what is known as its "biological value," or does it depend on an inability of the individual to assimilate and turn to useful account protein of good biological value? The proteins have now been differentiated in regard to nutritive influence according to the amount and kind of amino-acid yielded on hydrolysis.

The report of the Committee propounds these questions, and leaves them for others to answer. Dr. A. D. BIGLAND, in his paper appearing last week in our columns on the Pellagra Outbreak among Ottoman Prisoners of War in Egypt, brings forward much first-hand information that cannot fail to advance our knowledge. There is undoubted value in his experiments, which corroborate those of previous observers who have failed to find any evidence of bacterial or protozoal infection either by cultural methods or by complement-fixation. Unfortunately, he was unable to complete his inoculation experiments or his investigation into the effect of maize of various qualities. He suggests that food-deficiency may predispose to, and some unknown toxin determine the occurrence of, pellagra. He points to the obvious similarities between this and Addison's disease, conjecturing that if a toxin is in some measure responsible it may act by attacking the endocrine glands, possibly the suprarenals. VISIWALINGAM,[1] observing that on the Malay peninsula pellagra attacked the Chinese only, came to a similar opinion, that faulty diet in itself could not cause pellagra, and that some superadded factor, probably a toxin, was required. BIGLAND notices as an arresting fact that the German army, apparently well enough fed, suffered from pellagra, whilst our army, fighting in the same country and under similar conditions, escaped.

Dr. J. I. ENRIGHT, however, in our present issue, deals more particularly with the outbreak of pellagra amongst German prisoners in Egypt. This author considers that the dietetic conditions under which these German pellagrins developed the disease "are sufficient to explode the food-deficiency theory as a predisposing factor." He advances the hypothesis that the parotid gland has some influence upon the development of pellagra. This may, indeed, be a hazardous guess, but the value of publishing these extensive personal observations cannot be gainsaid. The report of the Committee of Inquiry is a definite landmark in the survey of pellagra. Careful records of personal experience will help to carry us to the next stage. For the present all investigators will make the report their jumping-off ground. The connexion between dietetic deficiency and endocrine activity, which pellagra, famine-dropsy, and other deficiency diseases suggest, seems on the verge of conclusive proof by MCCARRISON'S experiments.[2] ENRIGHT, although he rejects the theory of suprarenal inadequacy as an explanation of pellagra and regards the food-deficiency theory as exploded, none the less expects to find the cause of the disease in a disorder of internal secretion, which interferes with protein metabolism in some such way as pancreatic insufficiency disturbs carbohydrate metabolism. Perhaps the link which will unite these divergent views is to be forged out of the hypothesis which makes an adequate supply of tryptophane essential to the secretion of adrenalin.

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[1] Journ. of Trop. Med. and Hyg., 1920, xxiii., 46.

[2] The Effect of Deficient Dietaries on Monkeys, Brit. Med. Jour., 1920, i., 249.

Annotations.

"Ne quid nimis."

THE POPULARISATION OF HEALTH QUESTIONS.

DURING this week a widely organised campaign of enlightenment on all questions of health has been undertaken by the Royal Sanitary Institute. Unquestionably the public is far more widely interested in health questions than was the case even a decade ago, while at the close of the nineteenth century health questions meant to the majority of the public nothing more than calling for a doctor or going to a hospital. We are witnessing to-day a great change of spirit; and if ever a new Government Department had an opportunity of public appreciation for the services embarked upon, it is the Ministry of Health. The public now knows that in the improvement of health conditions lies the solution of some of our most anxious questions of statesmanship and legislation. The institution of "Health Week" should certainly increase the driving force of all whose business it is to conduct public health matters and supervise medical and nursing administration. The publication by the Ministry of Health of a pamphlet[1] directing public opinion to the salient points of preventive medicine is therefore particularly timely. In this pamphlet the Chief Medical Officer of the Ministry sets out with clearness the need of an educated community, if the great work now before the Ministry is to obtain intelligent attention; and he specifies the directions in which an enlightened public opinion can help the individual and the State. The simple principles by which disease, personal and epidemic, can be avoided are detailed, so that the community should be enabled to assent to sanitary reform and government with open eyes, not grudgingly nor of necessity, but in obedience to reason.

THE AMERICAN HOSPITAL IN LONDON.

PROGRESS has recently been made, both in England and the United States, with the organisation of the American Hospital for London. Ex-President Taft has accepted the presidency in the United States, while Lord Reading, who from the first has taken an interest in the success of the hospital, has accepted a similar position in this country, with Lord Bryce as vice-president. The plans have been considered by an influential committee of American citizens resident in London, and steps are being taken to incorporate the institution according to the laws of the State of New York, when a campaign will be opened to raise a large endowment fund. At present a big building scheme is not feasible, but it is hoped to open a temporary building for the accommodation of patients early in the coming autumn. The scheme for the American Hospital, following on that conceived by Mr. Philip Franklin less than a year ago, is broad in scope. The resolution founding the hospital laid down that one of its most important aims was "to act as a link in binding together the two nations for the advancement of medical science as affecting the welfare of humanity." Actually, and in practice, the hospital is intended to become the principal research centre in Europe for American medical graduates who wish to proceed with their studies. For many years past American graduates who desired to continue their medical education in Europe settled almost as a matter of course in Berlin or Vienna, where special opportunities were freely placed at their command by the German and Austrian authorities. Since 1914 conditions have changed, and the leading members of the American colony in London have determined that American graduates who come to Europe shall find in London the facilities they were formerly offered on the continent. This decision has received the unqualified support of many leaders of the British medical profession, and the medical committee in Great Britain includes Sir Arbuthnot Lane, Sir Humphry Rolleston, Sir John Bland-Sutton, Sir John MacAlister, and Mr. Philip Franklin, whilst the similar committee in the United States consists of such well-known physicians and surgeons as Dr. George W. Crile (nominated by the American Academy of Science on International Relations), Dr. W. J. Mayo and Dr. Charles H. Mayo, of Rochester; Dr. A. H. Ochsner, of Chicago; Dr. Rudolph Matas, of New Orleans; and Dr. Franklin Martin, of Chicago.

The organisation of the American Hospital is thus becoming of considerable international value, whilst in science it presents possibilities which have scarcely yet been fully realised. Nor is the social side being disregarded. In July the authorities of the hospital will entertain at dinner one of its American colleagues, Dr. Charles Mayo, whose surgical clinic at Rochester, Minn., is known wherever medical men congregate together.

THE STERILISATION OF MILK BY ELECTRICITY.

IN THE LANCET of May 9th, 1914, we reported the findings of some interesting investigations carried out in the Thompson Yates laboratories in connexion with the possibility of sterilising milk by electrical treatment. The work was undertaken by the professor of bacteriology in the University of Liverpool, Dr. J. Martin Beattie, and the results were of a promising character. A further quest, interrupted by the great crisis, has since been made and the Medical Research Committee has issued this week a report[1] by Professor Beattie, which presents the practical details of the method so far as recent work has developed. At the outset it was decided to refer the question to Professor R. F. C. Leith, of Birmingham University, with the result that he was able to confirm Professor Beattie's claim for the efficiency of the electrical method in sterilising infected milk. The conclusion now is that milk can be rendered free from *B. coli* and *B. tuberculosis* by the electrical method described, without raising the temperature higher than 63° or 64° C. The temperature effect is very short in duration, and in itself is not the principal factor in the destruction of the bacteria. It is stated that though the milk is not sterilised in the strict sense of the word, yet the percentage reduction of the bacteria, taken over a period of a fortnight, is 99·93. The keeping power of the milk appears to be increased, the taste is not altered, and, so far as careful chemical examination can determine, the properties not impaired. Finally, it is definitely stated that the milk so treated can be described accurately as raw milk free from pathogenetic bacteria. No very extensive work has been done nor safe conclusions deduced as to the biological value of the milk so treated, but so far babies fed on this milk are reported to have done "extremely well." The bactericidal effects are attributed not to the direct action of the current, as such, upon the bacilli, but to the heat generated in its passage, suggesting a thermal method of destruction. The opinion is expressed that in the electrical method the current raises the temperature of the milk more quickly than occurs in simple heat-sterilising, and since this current passes through every part of the milk the heat which it generates reaches the whole of the fluid at the same moment. We note that the electrodes used are made of copper, and it is known that traces of this metal serve a bactericidal purpose, but in the report it is stated that no trace of any copper or other metal could be found. The Medical Research Committee concludes that this work has presented us with "an elegant and practical method of purifying milk for human consumption, of which the use upon a large scale becomes now a problem for closer financial and administrative examination." The economic aspect of the question is not referred to in the report, but, if this should raise no difficulty, it will remain to ensure that the adoption of the method leads to no discouragement of clean methods in the byre and dairy.

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[1] Public Opinion in Preventive Medicine (the Lady Priestley Memorial Lecture), by Sir George Newman, K.C.B., Chief Medical Officer, Ministry of Health. London: His Majesty's Stationery Office. 4*d*. net.

[1] Special Report Series, No. 49. Published by His Majesty's Stationery Office.

BREATH-HOLDING AS A CRITERION OF CARDIAC EFFICIENCY.

IT is nearly two centuries since Valsalva's classic experiment in 1740 showed the marked and easily recognisable effect of sustained forced expiration on the pulse-beat, and therefore on cardiac efficiency, when the respiratory passages are forcibly closed. A hundred years later, in 1838, Johannes Müller, of Berlin, added the complementary experiment of the effects on the pulse of forced inspiration under similar conditions. These two experiments have become classic, and suffice to demonstrate the intimate relationship between respiratory movements and cardiac efficiency, which has since been studied in many bearings. A direct practical application of the value of these facts was set forth in our issue of last week (p. 976) in dealing with the testing of the fitness of would-be airmen for their trying avocation. The tests are relatively simple, easily applied, and enable the physician to ascertain the condition of the lungs, to measure—by a mercury manometer—the force of the expiratory muscular mechanism, and the pulse response under varied respiratory conditions. The breath-holding test enables the physician to obtain a fair idea as to the stability of the central respiratory nervous apparatus of the examinee. A stop-watch and a nose-clip are all the apparatus required, while the precise instructions as to carrying out the experiment are equally simple. The time the man can hold his breath before the inevitable and forceful sensation of the need to breathe compels him to give way is noted. The average time in the normal fit pilot is 69 seconds, the minimum being 45 seconds. Nearly all cases with a time record as short as this were rejected on medical grounds apart from this test. Not the least interesting part of the test as applied to airmen is the reply given when the examinee is asked what caused him to give way and breathe in, the normal response being, "I had to give up," or "I wanted to breathe." Under conditions that point to unfitness for pilotage the reply may be, "I felt giddy" or "dizzy" or "squeamish" or "flushed," responses which indicate that other nerve centres are involved besides the true bulbar respiratory centre. Such extraneous sensations, so markedly different in character from the pure inspiratory impulses, enable the observer to form conclusions, not only as to the stability of the respiratory centre itself, but indirectly of those other parts of the central nervous system whose stability plays an important part in the nervous outfit of the aeronaut. The combination of minimum time record and abnormal verbal response points to the examinee being one likely to suffer from oxygen hunger at high altitudes, and possibly to an inherent inability, by a strong effort of will, to carry on under conditions of stress. The breath-holding test may have a similar application in other branches of medical practice. It was effectively used by Dr. H. F. Marris in an attempt to estimate the factors in the production of tachycardia occurring in febrile illness, printed with a series of admirable charts in our columns on May 11th, 1918. The general practitioner might add it to his armamentarium.

CONTUSION OF THE PELVIS A CAUSE OF RETENTION OF URINE IN CASES OF ENLARGED PROSTATE.

IN the *Gazette Hebdomadaire des Sciences Médicales de Bordeaux* M. E. Loumeau has called attention to a cause of retention of urine in cases of enlarged prostate which does not seem to have been previously recognised—contusion of the pelvis. It is generally said that the onset of acute retention, the attack of prostatic congestion, as Legueu terms it, is usually due to exposure to cold, undue postponement of the need to micturate, change of regimen (excess of alcohol, diuretics, spices, &c.), sexual excitement, constipation, an attack of piles, shocks to the perineum from the vibrations of railway trains or badly sprung vehicles, or immoderate horse or bicycle exercise. But M. Loumeau has found that a sudden contusion of the perineum, whether directly by a fall on the buttocks, sacrum, or coccyx, or indirectly by a fall on the feet may bring about the same result. In his practice as a genito-urinary surgeon he has met with 15 such cases. The following are examples:—

A man, aged 51 years, who suffered from frequency of micturition at night, fell on his coccyx. Retention of urine followed, but disappeared after single use of the catheter. Seven years later, after a railway journey, he had another attack of retention, for which catheterism was very difficult. He was cured by prostatectomy.

In a second case a man, aged 63 years, had suffered for a long time from frequency of micturition by day and night. He was struck by the shaft of a cart and thrown, falling on the posterior surface of his pelvis. Complete retention of urine followed and lasted for four weeks, during which he was catheterised several times a day.

In a third case a man, aged 67 years, who had never had any urinary trouble, was knocked down by an automobile, which struck him on the chest and threw him violently on the posterior surface of the pelvis. Several ribs were broken. Complete retention of urine with incessant attempts at micturition followed. After prolonged effort clear urine was passed involuntarily drop by drop almost continuously, and there was intolerable pain in the lower abdomen. Bronchitis, œdema of the face and legs, and a generally miserable condition ensued. He was treated in hospital only for the fractured ribs, and was not seen by M. Loumeau until nearly three months after the accident. There was a greatly enlarged prostate with incomplete aseptic retention of urine and micturition by overflow. The bladder could be emptied only by a greatly curved metal catheter because of the prostatic obstruction. Suprapubic cystotomy was performed and showed enormous dilatation of the bladder. In consequence of the general condition of the patient prostatectomy was not performed until a week later. He was then completely cured.

In such cases the retention is evidently due to acute congestion of an already adenomatous prostate brought about by the injury. This retention may be the first symptom of old hypertrophy of the prostate, until then "silent" and unsuspected. The complication of contusion of the pelvis is of medico-legal importance, as it is a responsibility of the author of the accident.

MEDICAL REMEDIES: SAFEGUARDS FOR DOCTORS AND PUBLIC.

THE Ministry of Health calls attention, under this heading, to the misunderstandings which have arisen as to the objects and scope of the Committee recently appointed by Dr. Addison to consider measures for the effective control of certain therapeutic substances. The official statement is as follows:—

> The terms of reference do not include and have no relation whatever with the subject of patent or proprietary medicines (as those terms are popularly understood), nor is the work of the new Committee in any sense a reduplication of the work of the Select Committee on Patent Medicines appointed in 1912.
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> The "therapeutic substances" now under consideration are recognised remedial substances, the purity and standard of efficacy of which cannot be adequately ascertained by the employment of ordinary chemical tests as can that of the great majority of medicinal substances. This determination can only be done in the substances under consideration in properly equipped laboratories by the employment of biological or physiological methods. The substances in question may be divided into two great classes: (1) bodies such as serums and vaccines, of which a well-known example is the antitoxin given in cases of diphtheria; (2) mineral and vegetable bodies of another kind, the most familiar examples of which are salvarsan, the well-known remedy for syphilis, and digitalis, a remedy in certain forms of heart disease.
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> At present there is not in this country, as there is in some others, any effective supervision and control of the manufacture or standardisation of many of the important agents mentioned above. The work of the Committee is, among other things, to devise measures to coördinate and control the various tests and standards employed by firms and persons engaged in the preparation and sale of these substances, and to devise a uniform system of standardisation and control the better to guarantee that these agents are what they purport to be and are of an accepted standard of efficacy.
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> In a few cases, however—e.g., salvarsan—a body of the nature defined above may be the subject of a patent. It is only in such exceptional products, which are usually of foreign origin, that the question of patent medicines will arise at all, and even these bodies have nothing whatever in common with the ordinary run of patent and proprietary medicines with which the public is familiar.

In our issue of May 1st we informed our readers correctly as to the objects of the new Committee. The careless interpretation put upon these objects by some of the lay, and even some of the medical, papers has caused considerable misunderstanding.

In this connexion it is interesting to refer to a paper published in the April number of the *Journal of the Chemical Society*, just issued, in which it is shown that the composition of salvarsan is variable. This statement is significant since obviously any departure from a normal structure may well disturb therapeutical expectancy. The authors, Robert George Fargher and Frank Lee Pyman, state that when salvarsan was first introduced into general use the makers, a well-known German firm, claimed that salvarsan as made by them contained about 34 per cent. of arsenic. In 1911, however, it was reported by a writer in the *Apoth. Zeit.* that the substance lost 7·6 per cent. of its weight on heating and contained only 31·2 or 31·8 per cent. of arsenic. These results were communicated to Ehrlich, and later the makers issued a corrected statement in a circular to the effect that "the arsenic content of the preparation corresponds to the formula—$C_{12}H_{12}O_2N_2As_2 2HCl 2H_2O$" (=31·6 per cent. As). Later Ehrlich and Bertheim put forward the view that the final substance contained a methyl group, and Kober claimed the absence of $2H_2O$, and expressed the opinion that the combined solvent in salvarsan, precipitated from methyl alcohol by means of ether, is methyl alcohol. On seemingly good grounds Fargher and Pyman show that this view is erroneous, though they note that when salvarsan is precipitated from methyl alcohol solution, by means of acetone instead of ether, the product contains a molecular proportion of acetone in more or less stable combination. They point out also the presence of a considerable proportion of sulphur in commercial salvarsan, which was not disclosed in the reputed formula. The authors consider that the sulphur occurs, at least in part, in the form of the sulphamo group. A series of analytical figures shows distinct variations in sulphur, chlorine, and other contents in ten preparations examined. The authors describe a process for isolating a pure product. The call for standardisation is obviously clear.

THE SURGICAL TREATMENT OF PROLAPSE OF THE UTERUS AND VAGINA.

Dr. Blair Bell's lecture on this subject, delivered last Wednesday before the Royal Society of Medicine and published in this issue of THE LANCET, deserves the careful study of gynæcological surgeons. The after-results of his operations (99 per cent. of cures in 4000 cases) are so good that we welcome his contribution to the subject. He rightly emphasises that "no one procedure is suitable or satisfactory for every type of case." Cases of prolapse of the uterus and vagina are divided into two main groups by the writer, and the surgical treatment adopted differs in the two groups. The first group consists of cases of prolapse during the reproductive period, and the author at the outset condemns the operation of ventrifixation, and considers ventro-suspension useless. He advises repair of the vagina and perineum, amputation or repair of the cervix, if necessary, and his modification of Gilliam's operation to suspend the uterus. In bad cases more is required, and Dr. Blair Bell commends reconstruction of the peritoneal aspect of the posterior segment of the pelvic floor. By this method the pouch of Douglas is obliterated, with the result that this part of the pelvic floor is greatly strengthened. The second group of cases consists of those occurring at or after the menopause, and for these he favours the interposition operation, together with properly performed vaginal repair, although if there is no descent of the uterus the latter alone will suffice. Dr. Blair Bell attributes failure of the interposition operation to sepsis, and his experience of this operation has been far happier than that of most operators. It is evident that this operation will have to be reconsidered in the treatment of prolapse, and we have no doubt that considerable discussion will arise upon its merits in uterine prolapse. The principles enunciated with regard to vaginal repair are now well established, and most operators of experience will agree with them. Dr. Blair Bell rightly lays great stress on the preparation and after-treatment of his cases, and we agree that skilful nursing is essential for the ultimate success of the operation.

THE TRAINING OF BLIND STUDENTS.

AN important memorandum has been issued by the Board of Education, who consider that the time has now come when some further endeavour should be made to secure provision of better and more extended facilities for students formerly in attendance at special schools, and in especial for training blind students. With this end in view, they have decided to modify and substantially to increase their grants in aid to training institutions. The primary object is to provide an essential link between the special school which provides primary education up till the age of 16 and the workshop; but provision is also to be made for the needs of blind persons who, owing to the age at which they became blind or other circumstances, have not attended a special school, but who are capable of benefiting by attendance at a course of training. In determining the trades for which instruction and training can best be provided, the Board advise that careful consideration be given to probable openings for employment, either in the field of professional employment or in the open markets of industry and commerce, locally or otherwise, or in special workshops, or in home industries. To meet the needs of these students they recognise that a large proportion of them can only be provided for in residential institutions, and by offering largely to increase the grants it is hoped to enlist the more active coöperation of local education authorities. The new regulations in the first place provide for the payment to a local education authority of a grant of one-half of the net expenditure on: (*a*) approved courses at recognised institutions provided by the authority, and (*b*) payment of fees of students attending approved courses at a recognised institution not provided by the authority. Secondly, it has been decided to continue to pay grants direct to an institution not provided by an authority in respect of students for whom no fee has been paid by an authority, and to increase these grants to a maximum of £8 10*s.* a year, with an additional £8 a year for any student who is resident in the institution. These grants will be retrospective so far as the financial year commencing April 1st, 1919, is concerned.

VISIBLE GROWTH.

GARDENERS and reformers have this in common that they would both like to see their work grow beneath their eyes. Hitherto they have had to rest content with inferring growth from the fact that the objects of their care appear longer or broader after an interval of days or weeks. Even the gourd, which grows up in a night, shows no change to the most watchful eye. Under the microscope some of the lower forms of life may seem almost to grow, the pullulation of yeast cells being a familiar example. It is, of course, only a question of magnification and accuracy of perception. Continuous growth is there, if we were only able to perceive it. To Sir Jagadis Bose we owe the demonstration of the growth in the higher forms of vegetable life within a period of minutes. His crescograph, brought to perfection after years of painstaking study in the Research Institute which he founded at Calcutta, exaggerates the motion of the growing tip of the vegetable shoot a million times or more, rendering it plainly visible to a roomful of ordinary people possessed of no special powers of observation. Obviously accidental movement, due to warmth or other physical factors, similarly exaggerated by enormous magnification, has to be reckoned with. But Sir J. C. Bose was able a few days ago to satisfy six London professors of exact sciences of the actuality of the growth by means of apparatus set up in the physiological laboratory of University College, London. Each step in the process of growth became visible. The inventor has used his instrument himself to show the stimulating effect of sunshine and the depressing effect of ether on vegetable growth. Thus a physical reagent has been found for the presence of life in a body, and the vividness of that life under various experimental conditions can now be assessed in terms of linear measurement. The discovery may enable us to get nearer to the knowledge, which we so ardently desire, of the nature of life itself.

ROYAL ACADEMY EXHIBITION.

THE 152nd exhibition of the Royal Academy appears to have received from critical pens a favourable endorsement. Speaking only for a limited section of the public we are not surprised. The exhibition marks, in our opinion, real progress, not so much in technique—concerning which we have no qualification to speak—as in the qualities which so many of the pictures possess. Numerous as the exhibits are it is an open secret that they are the result of arduous selection among many competing canvases. If there are a good many efforts on the walls which might have well remained outside the show, many of these only fail because other examples are better, and there is a far lower percentage of the quite commonplace picture deliberately painted to meet what is supposed to be public demand. The fact is that public taste has been considerably educated of late, and it is possible that the general upheaval of social circumstances produced by the war has compelled a large number of people, for the first time in their lives, to look at the world in which they live, and thus to see things as they are and not as they think they should be. This is undoubtedly exactly what has happened with therapeutics, and it is natural that it should occur also in the world of art. There are few paintings of particular medical interest, and we do not observe any story pictures depending for their appeal upon what the artist considers to be the pathetic or dramatic side of medical work. We welcome with emphasis the disappearance of this kind of picture. Of well-known artists, Mr. Sargent is a notable absentee. Sir William Orpen, Sir John Lavery, and Mr. Clausen lend particular distinction to a very satisfactory exhibition. To Sir William Orpen's beautiful and dignified presentation portrait of Sir Clifford

Allbutt we referred last week. It hangs in the first gallery, and is certainly one of the pictures of the year.

COUNCIL OF BRITISH OPHTHALMOLOGISTS: A RETROSPECT OF TWO YEARS' WORK.

THE Council of British Ophthalmologists was founded at a meeting held at the Royal Society of Medicine on May 2nd, 1918. It owed its inception to the need for some body which could act rapidly and authoritatively in regard to questions of ophthalmological interest arising in connexion with national industries or public services. In the past such questions had usually been referred, often in a haphazard manner, to individual ophthalmic surgeons, who could express only their own opinions. Fortunately, many of those to whom application was made were well fitted to give advice, but a consensus of feeling arose that such advice would be of more value if given after the subject had been considered by a council representative of the general body of British ophthalmic surgeons.

During its two years of work the Council has found ample justification for its existence, as is sufficiently shown in the report presented at a meeting of British ophthalmic surgeons held at the Royal Society of Medicine on April 30th. Four communications have been published, dealing with (1) Standard Illumination of Tests of Visual Acuity; (2) The Need for Improved Training of Medical Students in Ophthalmology; (3) The Need for a Higher Qualification in Ophthalmology; (4) Vision of Men Engaged in Motor Road Transport. In regard to the second the report expresses regret that the General Medical Council has not yet taken effective action to remedy the deficiency. The third has already exerted a valuable influence. The Council has had the satisfaction of seeing the general conclusions reached in regard to the vision of motor drivers adopted by the police authorities in London and elsewhere, and finding acceptance with the leaders of the men concerned. These published communications represent only a part of the work of the Council. Four members were nominated to serve on a London County Council committee dealing with the lighting of cinemas and eye-strain. Committees are considering the standardisation of test types, the notation of cylinder axes, and the question of sight-testing by opticians. Two representatives are serving on the Advisory Committee on Technical Optics. The report closes with the brief remark that the expenses of the Council have been defrayed by its members.

POST-GRADUATE STUDIES IN BRISTOL.—The Director of Post-graduate Studies in the University of Bristol announces a course of demonstrations for Wednesday afternoons during May and June alternately at the Royal Infirmary and General Hospital. The subjects are as follows: May 12th, Medical Cases; May 19th, Atonic Dilatation of the Stomach, by Professor P. H. Edgeworth; May 26th, the Causes of Indigestion, by Dr. Carey Coombs; June 2nd, Recent Physiology and Surgical Pathology of the Stomach, by Mr. Rendle Short; June 9th, Surgery of Gastric Ulcer and Pain, by Mr. T. Carwardine; June 16th, Cutaneous Reactions in Asthma, Urticaria, and Idiopathic Vomiting, by Dr. J. A. Nixon; June 23rd, Treatment of Simple Fractures by Extension Appliances, by Mr. Hey Groves; June 30th, Surgical Cases. A fee of 2 guineas covers this course, as well as one month's attendance at any or all of the clinical departments of the University. Opportunities of daily study are also afforded to clinical assistants, who, in addition to work in particular departments, are made free of laboratories, library, and so on, at a rate of 3 guineas per month. All inquiries should be addressed to the Director of Post-graduate Studies (Clinical Section), Pathological Department, University of Bristol.

KING EDWARD'S HOSPITAL FUND FOR LONDON.

IN order that the hospitals of London may immediately benefit by the funds collected under the auspices of King Edward's Hospital Fund for London a preliminary meeting is held at the end of the year, when the report of the Distribution Committee is announced and the awards allocated. An account of the last meeting was published in THE LANCET for Jan. 3rd (p. 50). The annual meeting was held at St. James's Palace on April 30th, when the Earl of Donoughmore presided. At the commencement of the proceedings a resolution of regret was carried in silence on the announcement of the death of Sir Henry Burdett, who, in many ways, was, as Lord Somerleyton pointed out, the originator of the idea of the Fund. In presenting the account of receipts and expenditure for the year ending Dec. 31st, 1919, Lord Revelstoke, the honorary treasurer, reminded the Council that in order to meet the cost of renewals and repairs of hospitals, deferred owing to the war, it was estimated that £50,000 would have to be drawn from reserves, but this had proved an over-estimate by £4000. The motion, on the proposal of Lord Donoughmore, seconded by Sir T. Vesey Strong, was carried unanimously. Sir Frederick M. Fry, honorary secretary, submitted the draft report of the Council, which showed that the total receipts for the year 1919 were £201,477 0*s.* 9*d.*, of which £8422 2*s.* 2*d.* were contributions to capital, and £193,054 18*s.* 7*d.* receipts on general account.

The General Fund receipts were made up as follow: Annual subscriptions, £25,199 13*s.* 2*d.*; donations, £7143 7*s.* 3*d.*; League of Mercy, £17,000; legacies, £21,976 2*s.* 8*d.*; dividends and interest from investments, £116,535 15*s.* 6*d.*; trustees of the Bawden Fund, £200; estate of Samuel Lewis, deceased, £5000, making a total of £193,054 18*s.* 7*d.*

During the year the amount spent on the administration of the Fund was £4085 17*s.* 9*d.*, or £2 0*s.* 6*d.* per £100 of the total received, as compared with £3672 19*s.* 2*d.*, or £1 13*s.* 7*d.* per £100 in the previous year. The average yearly outlay in this respect for the whole period since the inauguration of the Fund has been £2954, the corresponding percentage of the receipts being £1 5*s.* 5*d.*, or less than 3¼*d.* in every £1 received.

The question of hospital extensions has for some time been engaging the special attention of the Distribution Committee. By the end of 1917 schemes had been notified which, if they were all carried out, would have the effect of adding 1750 to the number of beds available in 1913. By the end of 1918 the number of additional beds provided and contemplated amounted to about 4000, of which about 1000 had already been opened since 1913, and the Distribution Committee had begun a detailed examination of all these schemes, partly in connexion with the pending special distribution of surplus Red Cross funds, and partly for the general purpose of securing that no scheme should be undertaken without due regard to financial practicability, and to the general effect of all the schemes taken together.

The Council are under great obligations to the newspaper press for the assistance they have rendered in the past, and continue to rely upon their kindly coöperation in obtaining for the Fund wider publicity and support. Their help is more than ever valuable at a time like the present, when hospital expenditure has enormously increased, when the subscribing power of many regular contributors has diminished, and when, therefore, it becomes more and more important that the special value of the work of the voluntary hospitals, and their claims to increased support, should be brought home to a wider public.

In moving the adoption of the report, Lord Donoughmore referred to an estimate recently issued by the honorary secretaries of the Fund in which it was shown that the total expenditure of the London hospitals in 1919, taken together, amounted to £2,100,000. Towards this their income, including the grants from the three central funds, amounted to about £1,900,000, leaving a deficit on the year's working of £200,000, or approximately 10 per cent. The annual deficit of the London hospitals at the time of the inauguration of the King's Fund in 1897 was about £70,000, which, by a coincidence, was also about 10 per cent. of the expenditure. Although during these 23 years the hospitals had been able to pay their way, the income increasing with the expenditure, it was not wise to be too optimistic of the future. The present difficulties of hospitals were not the result of any failure on their part, but arose solely from the general financial effects of the war. The motion was seconded by Mr. Norman, Governor of the Bank of England, and carried. A vote of thanks to Lord Donoughmore terminated the proceedings.

HOUSING NOTES.

Housing Bonds Campaign.

THE campaign for raising local funds to support the housing schemes already in progress was inaugurated at the Guildhall on May 3rd. In the absence of the Prime Minister, which was due to sickness, Mr. Bonar Law appealed to a large audience of city men and delegates from local authorities. He pointed out that while in matters of social reform the country must have regard to the capital at its disposal, the credit of the country was itself dependent upon the stability of industrial conditions; a sullen and angry populace might be fatal to the industry and credit of the country. The same point was made in a letter from the Prime Minister, who wrote that "adequate housing would ensure happy homes, which are the surest guarantee any country can provide against agitation and unrest."

Mr. Law touched on the impossibility of securing such homes under present conditions, and said that the attempt to stamp out tuberculosis was hopeless while overcrowding persisted. The five years' arrears of housing would not be made up without an exceptional effort. This effort was being put forward by the Government. On upwards of 30,000 houses work was actually in progress, and a stage had now been reached when the programme was in danger of interruption for want of financial guarantees. Every class of the community should assist, since every class was interested. He appealed in particular to employers of labour and to the churches. Many industries, though they needed more men, were unable to absorb those who were out of work because no houses could be found for them to live in. Religious bodies must realise that the moral and spiritual well-being of the people was bound up with housing conditions.

Dr. Addison, in proposing a vote of thanks to Mr. Law, announced that 40,000 to 50,000 houses were held up because local authorities hesitated to sign contracts. The contracts now prepared were sufficient, he said, to employ nearly the whole of the building trade. To an interrupter, who wished the State to furnish all the necessary funds, Dr. Addison retorted that each locality had its own problems and responsibilities. The State could only get money from its citizens, and the people of each locality must be moved by a sense of duty to those amongst them who had fought in the war and now are homeless.

Mr. Walter Leaf, the President of the Institute of Bankers, seconded the vote of thanks and promised the bankers' support in the campaign.

Though none of the speakers made any definite appeal to the profession, medical interest in the health of the community will certainly promote earnest endeavour.

Standards of House Construction.

While so many new houses are being put up it is important that a reasonable standard of construction shall not be sacrificed to the urgency of the moment. An official of the Ministry of Health, who resigned recently, gave as one of the principal reasons for his resignation his opinion that the standards laid down in the Housing Manual are not being maintained in practice. Dr. Ira S. Wile raised some interesting points in this connexion in a paper read last autumn to the Sociological Section of the American Public Health Association.[1] In one city (Johnstown, Pa.) the infant mortality-rate in homes with bath-tubs was 72·6 and without 164·8. The effect of overcrowding both on infant mortality and on various contagious diseases is also discussed in this paper. Among the methods advocated by Dr. Wile for raising the standard of house construction are: "the education of the public as to the natural value and importance of sanitary dwellings; ...... the promulgation of minimum standards of housing construction, and particularly the regulation of standards of maintenance and repair; ...... the support by health departments of those measures tending to increase family incomes, so as to bring about a minimum standard of living wage." Lord Astor, speaking recently to a Conference of the National Council of Public Morals, said that unless we swept away slums, slums would sweep away the existing order of society, from which it may be gathered that the official view of housing standards is certainly above the practice of East London, whatever may be said of the new houses in the north.

The Limit in Overcrowding.

Reports from all parts of the country confirm the impression that the population is becoming more crowded and harassed for want of houses as the months of peace are multiplied. At Yeovil the relieving officer told his board of guardians on April 16th that there was a family living in a farm out-house. They had been ejected from their home. At Shoreditch the coroner was properly shocked to hear of a man sleeping in one bed with two of his daughters, one of them 19 years old; but it appeared that the family of five lived in a two-room tenement and slept in one room containing two beds. As the mother and one child were seriously ill with influenza the conventions could hardly be respected. Under such conditions, if one member of the family catches any infectious disease it is almost inevitable that all should suffer and no one be left to nurse the sick.

The Need for Public Interest.

In face of such stories as these, the difficulties still to be overcome by the Ministry of Health are almost incredible. The shortage of labour remains a most serious obstruction, and though the least wealthy are certainly the worst sufferers through the present state of affairs, it seems impossible to move the building unions to admit "diluted" labour. So serious is the result that it becomes a duty incumbent upon every public-minded citizen to support the local authorities in his own neighbourhood and to put his private purse no less than the stimulation of his personal interest at the service of whatever schemes may be in hand. It may be well to remind those who find little sympathy with public schemes that the Government bonus is payable to all who build houses through private enterprise so long as these houses are completed by Dec. 23rd, 1920. The plans have to be approved by the local authority. The General Housing Memorandum No. 25, issued by the Ministry of Health in March, gives full particulars, while a White Paper[2] issued in the same month gives the specifications required by the Ministry for wooden houses. This is of interest in view of the short time allowed for completion of the building. The bonus on the first two completed houses has already been paid.

Housing Reform in South Africa.

In South Africa the disgraceful condition of the poorer dwellings in many of the large towns was brought to light by the severe influenza epidemic of 1918–19. Hottentots, Kaffirs, and Whites too, were found living in insanitary, ill-ventilated, and badly overcrowded dwellings. The shortage of houses made immediate reform the more difficult to accomplish, but although the South African Government has so far taken no steps, many municipalities have undertaken local housing schemes, and others are discussing the advisability of so doing. Bloemfontein is generally considered to be the model city in this respect. Here the municipality have built a quarter of ideal workmen's cottages and insist that the workers shall be able to keep the cottages in good order and to pay an "economic rent." To this end every worker must earn at least 7*s.* 6*d.* daily. If his trade cannot pay him at this rate he is allowed an allotment for cultivation in his spare time, so that the deficiency in his regular wages may be made up. Here is an object lesson which some of our own local authorities might do well to study.

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[1] American Journal of Public Health, April, 1920, p. 327.

[2] Standard Specification for Cottages of Timber Construction. His Majesty's Stationery Office. 1920 3*d.*

THE MEDICAL EXAMINATION OF THE CIVILIAN AERONAUT.[1]

(Concluded from p. 976.)

The methods employed in the medical examination of civilian pilots, navigators, and engineers were set out briefly, though substantially in the words of the official publication, in these columns last week, but only the general medical and surgical standards required were commented upon. It is, of course, essential that the candidate, when his general health conditions have been found to fit him for his occupation, should also be in full possession of his special faculties of seeing, hearing, and that the vestibular apparatus, the nose, throat, and buccal cavity, should be normally formed and fit to discharge their physiological functions.

As the Report points out, the importance of a reasonable degree of visual acuity is obvious, but ability to judge distances is an even greater necessity. Normal refraction and a healthy condition of retina and intrinsic muscles is required for the first, while for the second it is necessary that the aeronaut should possess good binocular vision and normal balance of the extrinsic muscles. The scheme of the medical examination is set out as follows:—

Eye Examination.

Both intrinsic and extrinsic muscles are liable to a lack of tone or over-action. Occurring with intrinsic muscles, visual acuity is directly affected. With intrinsic muscles lack of tone and over-action are not only liable to affect visual acuity, but also tend to give conflicting, delayed, or wrong interpretation of messages sent from the eye to the brain, and the ensuing reactions will, in consequence, tend to be delayed or even at fault. When, therefore, these conditions exist danger to life and material is obvious, and one of the most important aims of the eye examination should be their early recognition.

Examination of the muscular balance and its defects is extremely difficult, and full of pitfalls; it must be remembered that fusion faculty is largely dependent on physical health and that any slight fault may be exaggerated by entirely temporary causes such as fatigue, illness or recent application at close work, especially if there has been acquired a habit of suppression or neglect of one or other eye.

The Royal Air Force are at present only admitting candidates with an unaided visual acuity equivalent to 6/6 in both eyes. Provided that heterophoria is absent, or only present to a slight degree, in certain specially suitable cases this visual standard may be slightly relaxed for civilian aviators. It is, however, not advisable to allow the standard (even in special cases) to be below 6/9 and 6/12, correctable to 6/6 with glasses.

Cover test for muscular defect.—Ask the patient to fix a pencil in a similar manner, and with the other hand cover one eye with a card and then uncover; watch whether the eye moves on uncovering. Repeat the test for the other eye in a similar manner. A perfectly balanced pair of eyes will remain fixed on the pencil whether one is covered or not, whereas movement inwards or outwards on uncovering shows lack of balance under convergence.

It is evident that the medical man conducting an eye examination of this quality must be considerably familiar with his subject, as the tests are of a high physiological standard, but it is provided that doubtful cases can be referred for examination by a specialist. With regard to the difficult subject of colour vision, it is notorious that there are differences of opinion in respect of the Board of Trade standards and existing regulations for master mariners and engine-drivers. Dr. F. W. Edridge-Green, by work of the highest physiological quality extending over many years, has been able to show that more than half the colour-blind persons can pass the Holmgren wool tests, tests which, moreover, may lead to the rejection of candidates with normal colour vision. In consequence, Dr. Edridge-Green's lantern has been adopted by the Navy for the standardisation of colour perception, a reform which ought soon to take place in the regulations of the Board of Trade, by which the examinations of the civilian aeronaut are guided.

Ear Examination and Vestibular Apparatus.

With regard to the vestibular apparatus, the value of routine examinations by the various Barany tests has not been finally accepted by the Royal Air Force, further investigation having been undertaken into the records which have been kept. A reference is given in the selected bibliography (attached to the pamphlet) of the printed work in this direction which has been published in the United States, where great importance is attached to the Barany tests.

The following are the directions for the examination or re-examination of candidates, to see that they possess hearing sufficiently acute to detect accurately signals and ascertaining minor defects in engines.

(i.) *Hearing.*—The hearing in either ear must be acute, that is, equivalent to a forced whisper at a minimum distance of 20 feet, each ear being tested separately with the meatus of the other side occluded and the face turned away. In cases of failure, when it is considered that treatment may bring the hearing up to standard, the subject may be temporarily deferred and re-examined at a later date.

(ii.) *External ear meatus and membranes.*—(Apparatus required: usual ear examining instruments.) *(a)* Meatal infections and obstructions, while not permanently disqualifying, must be satisfactorily cured or removed before acceptance. *(b)* A permanent dry perforation in the membrane constitutes a disqualification for air work. *(c)* Cicatrices of the drum of long standing, unless obviously liable to breakdown under alterations of atmospheric pressure, may be passed, provided that the hearing is up to standard and that there is no cause in the nose, pharynx, or naso-pharynx for reinfection.

(iii.) *Middle ear and Eustachian tubes.*—*(a)* Catarrhal or suppurative otitis media. If the condition is acute or subacute the applicant or airman should then be referred for treatment and subsequently re-examined. Chronic suppurative otitis media is a cause for rejection, as also the radical mastoid operation, successful or otherwise. A healed operation for acute mastoid suppuration, with satisfactory hearing and a sound membrana tympani, need not be considered a cause for rejection. *(b)* Oto-sclerosis should constitute a cause for rejection. *(c)* The examiner should satisfy himself that both Eustachian tubes are patent, and should reject cases of permanent obstruction, but not temporary ones.

(iv.) *Cochlear apparatus.*—"Nerve deafness" or any other disability of the cochlea or cochlea nerve tract should not be present. Applicants or airmen suffering from affections of the internal ear, accompanied by deafness or labyrinthine symptoms, should not be accepted for air work.

Examination of Nose, Throat, and Buccal Cavity.

The Report points out that anything tending to block the upper respiratory passages by interfering with the ventilation of the lungs constitutes a great disability for the carrying out of any duties in the air; and under this heading the wise precaution is added that symptoms, apparently trifling in importance on the ground, may be considerably aggravated in the air. While the medical examiner must bear this in mind in estimating the circumstances of the ears, nose, and throat, he is wisely enjoined to give due weight to the previous flying history. If a candidate has shown no disability in these directions when flying, the absolute evidence in his favour is to be considered before negative evidence resting on presumption. The instructions run as follows:—

(i.) *Buccal cavity.*—Carious teeth, gingivitis, and pyorrhœa must be successfully treated before acceptance. Artificial teeth do not disqualify, but care must be taken that the plates are well fitting.

(ii.) *Pharynx.*—Tonsils. *(a)* Enlarged tonsils which produce obstruction, or which become repeatedly inflamed or associated with attacks of quinzy, must be enucleated before an applicant can be accepted. *(b)* Septic tonsils, even only unhealthy remnants, from which the septic material can be expressed, or which cause repeated sore throats or chronic enlargement of the glands of the neck, must be enucleated.

(iii.) *Naso-pharynx.*—Adenoids, however small in amount, when causing repeated colds, with acute or subacute Eustachian obstruction, or catarrhal or suppurative inflammation of the middle ear, should be removed before an applicant is accepted.

(iv.) *Nose.*—*(a)* Mouth-breathing constitutes a serious flying disability. *(b)* Deviated septum. If this blocks more than half the air-way in one nostril, or is associated with frequent colds or headaches, it should be remedied by operation before the applicant's acceptance. Slighter degrees may be ignored. *(c)* Turbinal hypertrophy should also be remedied by treatment before an applicant is accepted. *(d)* Infection of the accessory sinuses. Acute infection must be cured before accepting an applicant. Chronic suppuration constitutes a cause for rejection. If the antra alone have been affected, and a satisfactory operation has been performed leaving a free opening into the inferior meatus, and the subject is, in addition, free from all signs or symptoms, he may be accepted. Permanent drainage into the mouth should not be regarded as a satisfactory operation. *(e)* Nasal polypi must be removed and the cause cured before acceptance. *(f)* Atrophic rhinitis should constitute a disqualification.

(v.) *Larynx.*- Should hoarseness or any symptom or sign pointing to a laryngeal affection be present, a careful examination of this portion of the upper respiratory tract should be made.

A Valuable Report.

This able Report has been drawn up for the Royal Air Force by Lieutenant-Colonel C. B. Heald, medical adviser to the Civil Aviation Department, and is founded on a confidential document, written earlier by Mr. A. H. Cheatle, Dr. G. A. Sutherland Colonel H. C. T. Langdon, and Colonel Heald himself, later elaborated by Colonel Martin Flack, the valuable papers in our columns by the last named indicate his share in forming the Report It remains to congratulate Colonel Heald, and all who helped him, upon a straightforward and informing guide to the physical examination of the civilian aeronaut, and it may be added that the instructions will be very useful for the grading of any persons who are candidates for employment in positions of trust where industrial fatigue will play a part

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[1] The Medical Examination of Civilian Pilots, Navigators, and Engineers. London: His Majesty's Stationery Office. 1920. To be purchased through any Bookseller or directly from H.M. Stationery Office, 6*d*. net.

PELLAGRA IN EGYPT IN 1918

REPORT OF THE COMMITTEE OF INQUIRY

IN 1918 there were many prisoners of war in Egypt, amongst whom a disease appeared soon recognised as pellagra, the number of cases growing till it became serious On Oct 6th, 1918, a Committee was appointed, under Colonel F D Boyd, to examine the situation and to advise how it should be met The report of the Committee, dated Dec 31st, 1918, has been appearing in the last five numbers of the *Journal of the R A M C*, and its conclusions are of great interest Not only did the Committee clear up the problem of pellagra in Egypt, but it has put on record observations that will have to be remembered by everyone who has in future to draw up any diet scale All medical officers who read this well arranged report will feel the importance of daily watching the condition of the rations supplied to their units and of paying attention to the work of the cooks, while the study of the Committee s clinical observations on pellagra will well repay the physician

Pellagra as it occurred in Egypt is a deficiency disease due to insufficient assimilation of protein and characterised by erythema and pigmentation of the exposed parts of the body (on the back of the hands first, a fortnight later the nose, later on the feet, these discoloured patches being dry and not sweating even under pilocarpine), this is followed by a profound disturbance of nutrition with early wasting of the muscles of the shoulder girdle, and progressively increasing fall in blood pressure Loss of appetite is a very early symptom and there is defective secretion of hydrochloric acid in the gastric juice Herewith there is impairment of digestion, both gastric and pancreatic, mal assimilation of both protein and fat, and an increased bacterial growth in the intestine, with intermittent diarrhœa leading to further loss of food ingested, but incompletely absorbed Also the enhanced destruction of proteids gives very foul smelling stools and indican appears in the urine in increasing quantities, apathy comes on, perhaps melancholia, and the patient dies The disease picture suggests suprarenal inadequacy, and, in fact, in the recorded cases the suprarenals averaged 15 gr lighter in the pellagra cases than in the controls There is no evidence of specific bacterial or protozoal infection Death is due to some intercurrent infection, pneumonia, dysentery, tuberculosis, or malaria accounted for 91 per cent of deaths The disease occurred in Turkish camps, not in the camps of Germans alongside, where there was money to buy extra food Spot maps showed that there was no infection from place or person

Preventive Measures

The important question was how this disease was to be prevented Investigation showed that 88 per cent of the cases had arisen amongst newly captured Turkish prisoners of war, who before capture had for months only had available two thirds of their normal ration, and had so suffered "from long continued under nutrition," as their German general had reported already the year before Further, the protein of their diet came mostly from wheat, barley, or maize, very little from meat Now Hopkins and Willcocks, in 1907, showed that the chief protein of maize cannot keep rats alive, as it does not contain enough tryptophane, an amino acid of the aromatic series, in 1913 Sandwith suggested that want of tryptophane might help to cause pellagra The Committee called in to help them Professor W. H Wilson, of the Cairo School of Medicine who has long been working at the different nutritional values of the proteins, which seem in part to depend on their individual amino acids For the making of adrenalin a benzene nucleus is essential For the production of this the human organism depends upon the hydrolysis of special proteins in the food supply, and even then the yield of tryptophane in this process may be broken up by an overwhelming bacterial flora in the duodenum Every diet scale considers how much protein is necessary for the man of 70 kg, which is agreed at 40 g daily But that means grammes absorbed, and for normal people must be increased by one tenth, but experiment proved that for Turkish prisoners it required to be increased by one half So that, even if they had got full rations, the Turks would have been underfed But, further, they were fed on the wrong proteins Professor Wilson had calculated the "biological value of the proteins" (B V P) of various foodstuffs and had found that, to replace 30 g of meat as protein supply in a man s diet, 54 g of rice protein were necessary, 50 of beans, 76 of bread, and 102 of maize And that is why maize eating people suffer proverbially from pellagra, it has the lowest B V P of all the cereals, and, of course, if it is damaged or decayed it is all the less nutritious and pellagra arises more quickly Vegetable proteins are not so easily assimilated as those in meat, and, further, the beans for the prisoners were not at first well cooked These difficulties were all adjusted, but it appeared that men might escape pellagra on a particular diet while they were resting, but succumbed as soon as they worked hard, so the diet for heavy labour, though showing already sufficient caloric value and vitamine content, had to be increased, then the pellagra ceased

Lieutenant Colonel P S Lelean and Professor H E Roaf have done excellent work is disentangling, with Colonel Boyd, a complicated problem

SCOTLAND

(FROM OUR OWN CORRESPONDENT)

Hospital Finance in Aberdeen New and Successful Efforts

ON April 24th, when an excellent concert was given to a packed house in the Tivoli, the students of Aberdeen University completed a successful gala week on behalf of the finances of the Aberdeen Royal Infirmary The week commenced with a concert in the debating hall, Marischal College On the following day a football match was played between the University and the Aberdeen clubs, and a largely attended thé dansant was held in the Mitchell Hall On April 23rd students paraded all the principal streets in fancy dress with collecting boxes, and in the evening organised a torchlight procession The various events of the week were well advertised by a number of undergraduates who took their turn at parading the streets of the city as sandwichmen Women students took a prominent part The gala week was a new and most successful effort organised by the Students Representative Council, and it is to the work of the office bearers of that body that the excellent results are in large measure due The total sum collected was £1496 4*s* 11*d* and after meeting expenses of £21 13*s* 6*d*, there remains £1474 11*s* 5*d* to be handed over The successful efforts on the part of the students appear to have coincided with a widespread determination on the part of employers and employees of the large city firms to increase their responsibilities in the financing of the local hospitals The initiative has been taken by the workmen in the employment of Hall, Russell, Ltd, shipbuilders, who as the result of a ballot, have unanimously decided to double their annual contribution to the hospitals in the city The new subscription per man will be those earning £2 per week and under, 2*d* per month, those earning over £2 per week, 4*d* per month

University of Aberdeen Halls of Residence for Students

At a meeting of the Senatus of the University of Aberdeen held on April 28th, Principal Sir George Adam

Smith in the chair, a report by the special committee appointed to consider the question of halls of residence for students and other members of the University was approved in principle and forwarded to the Court. New regulations for the diploma in public health were also considered and forwarded to the Court.

Mother and Child Welfare Centre in Aberdeen.

The new Mother and Child Welfare Centre premises in the Castlegate, Aberdeen, were formally opened on April 30th. The building consists of a converted army hut, which contains a doctor's-room, weighing-room, a lecture hall for mothers, a provident-room, and a "toddlers' room," with an excellent shelter for the children leading on to a spacious playground, which is situated so as to obtain plenty of sunshine. Dr. J. A. Stephen, who is medical officer for the child welfare scheme in Aberdeen, will be in daily attendance. Lectures on health, the rearing of children, cooking, &c., will be given weekly, while the playground at the back of the building will be available daily for children under 5 years of age with their mothers. Mrs. Raitt, a member of the centre, has been successful in winning the competition for the Rhondda Mothercraft Challenge Shield, presented by Viscountess Rhondda and open to mothers attending welfare centres throughout Scotland. The subject of the competition was an essay on the important points in rearing children. The shield is held by the successful centre for one year, and if won three times in succession becomes the property of the centre.

The late Dr. J. Ironside of Laurencekirk.

The death took place at Laurencekirk on April 24th, in his seventy-sixth year, of Dr. James Ironside. Dr. Ironside was a native of Bonnykelly, in the parish of New Deer. He commenced practice in New Pitsligo, and in 1870 he took over the late Dr. Campbell's practice in Laurencekirk, where on his recent retirement he had just completed 50 years unbroken professional service. Dr. Ironside was an expert agriculturist and tenanted in succession several large farms. He was for a number of years a member of the town council of Laurencekirk and acted as chairman of the Lighting Society. He is survived by his widow and a family of three sons and three daughters.

Dr. Francis William Nicol Haultain has been appointed an additional inspector of anatomy for Scotland for a period of two months from April 20th.

May 3rd.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Dublin Corporation and an Eight-hour Day for Nurses.

THE corporation of Dublin has been in the habit of [illegible] grants, varying in amount, to the several Dublin ospitals. The corporation has now directed that as a ondition precedent to giving grants the hospitals must tablish an eight-hour day for nurses. This demand s one of the first results of the success of the Labour candidates at the recent municipal elections. It may be admitted that in Dublin, as elsewhere, nurses have been underpaid and sometimes over-worked, but an eight-hour day, however suitable a standard it may be for labour under ordinary conditions of continuous work, appears to be inapplicable in the case of discontinuous work such as nursing. It may not be possible for the hospitals to meet the demand of the corporation, and if the corporation presses its wishes the hospitals may find themselves deprived of support which, small as it is, can be ill spared at present.

Medical Man Killed in Motor Accident.

Dr. A. P. Spelman, of Dunmore, Co. Galway, was killed last week in a motor accident. When turning a corner the car skidded and overturned, pinning Dr. Spelman, his man, and a friend underneath. The other two were not seriously injured, but Dr. Spelman had been caught by the steering wheel and was killed instantaneously. He was only 26 years of age.

The Question of a Surgical Tuberculosis Hospital for Belfast.

Sir Henry Gauvain's report has now been received upon the suitability of "Graymount," the property on the north side of Belfast recently acquired by the corporation for a sanatorium for bone and gland tuberculosis. While making little of the climatic objections raised against the site, he objects in principle to the attempt to adapt a private residence to the purposes of a surgical hospital on the ground of expense and inconvenience. He advises the selection of a new marine site, laying down at length the desiderata to be borne in mind, "Graymount" to be used temporarily as a hospital and retained later as an after-care institution for certain types of surgical tuberculosis needing prolonged treatment. The report has been sharply criticised in the local press, which claims that the site, if unsuitable for one purpose is unsuitable also for the other, and which finds Sir Henry Gauvain's ideal scheme too Utopian. The familiar view is taken that it would be more economical for the present to concentrate upon the provision and improvement of housing, so as to resist tuberculosis generally, than to spend any money in a special direction.

Belfast Ophthalmic Hospital.

The main features brought forward at the annual meeting of the Belfast Ophthalmic Hospital—the oldest eye institution in Belfast—on April 27th were the great increase in patients—214 more eye patients and 190 more ear and throat, while the number admitted to the wards was almost double that of 1918; the good financial position—a debit balance of £5 4*s.* 9*d.* carried forward last year is now turned into a credit balance of £93 19*s.* 5*d.*; and the further progress of the proposed amalgamation of the Belfast Ophthalmic Hospital with the Ulster Eye, Ear, and Throat Institution. During the past year the combined staffs of the two hospitals have considered the matter and have wisely agreed on a good scheme of amalgamation, so as to have one great eye hospital worthy of the city of Belfast. The only difficulty is the legal one, how far the trust-deeds could be adapted to the proposal. It is really absurd that in these days of progress we should be tied by ancient forms, which are disadvantageous now both to the hospitals concerned as well as to the public.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Laënnec Institute.

A COMMITTEE was formed some months ago to work out the best way to commemorate the distinguished Breton doctor who invented auscultation 100 years ago, and thus gave to medicine not only a method fertile in results, but the stethoscope itself. The subscriptions have amounted to quite a considerable sum; the committee, having discarded the idea of an elaborate monument, has now decided on the much more useful establishment of a Laënnec Institute for the study o the prophylaxis and treatment of tuberculosis. The principal activities will be directed to the erection o laboratories, dispensaries, and sanatoriums, and the organisation of crusades in France and elsewhere The constitution of the Institute has recently bee adopted by a general meeting of the French Faculty o Medicine, which has at the same time nominated a administrative council. The officials elected includ Professor Letulle, president; Professors Gley, Calmette Vaquez, and Dr. Sergent, vice-presidents; Dr. Gallois general secretary; and M. Robert Laënnec, treasurer.

Lethargic Encephalitis.

The present epidemic appears to be on the decline few new cases are being reported. None the less, mor and more papers are being published on observation already made. M. Levaditi has published an interestin study of the filter-passing virus of this disease, whic can be inoculated into rabbits The lesions present microscopical characters which allow of a distinct differentiation of this virus from that of epidemic poliomyelitis, with which many clinical workers have sought to identify it M Netter has recently given a lecture at the Academy of Medicine on the infectivity of lethargic encephalitis He has now no doubt that it is infectious, though cases of direct infection are rare He quotes the case of a girl who came to Paris from a provincial family, a member of which developed the disease after her departure On arrival in Paris she apparently conveyed the infection to two cases which arose in her immediate neighbourhood. M Netter suggests that the virus is probably carried in the saliva He thinks that many people are naturally refractory and *may nevertheless be carriers of the germ* The isolation of patients would thus be desirable but impracticable, because the long duration of the disease and the frequency of relapses would necessitate a period of isolation disproportionate to the risk avoided

The Transmission of Syphilis in Animals.

M. Auguste Marie, principal medical officer of Villejuif Hospital, and M Levaditi, of the Pasteur Institute, have succeeded for the first time in the experimental transmission of syphilis in animals by sexual intercourse It will be remembered that these workers have differentiated a dermotropic virus,[1] the cause of cutaneous and mucous manifestations, and a neurotropic virus with which these experiments are concerned It is interesting to find that one animal can infect another by simple contact without any visible lesion Some light may be thrown on such controversial questions as conjugal general paralysis of the insane and the mechanism of hereditary nerve diseases by a development of these experiments, which have already shown that the infected male loses some of his sexual activity, while the infected female remains potentially fertile

Hospital for British Seamen on French Soil

The foundation stone of a hospital for sick or wounded British seamen was laid at Marseilles on May 2nd by Lady Burghclere, to whose efforts its erection is largely due The hospital will be well equipped, will contain 64 beds, and will afford treatment for all diseases It is situated in open country near the port, and when completed will doubtless be much appreciated by the mercantile marine The fund is not yet complete, £5000 being still needed.

May 4th

URBAN VITAL STATISTICS.

(Week ended May 1st, 1920)

English and Welsh Towns —In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 18 million persons, the annual rate of mortality, which had declined from 18 7 to 14 5 in the five preceding weeks, further fell to 14 2 per 1000 In London, with a population of nearly 4½ million persons, the annual death rate was 13 7, or 0 5 per 1000 below that recorded in the previous week, while among the remaining towns the rates ranged from 5 4 in Oxford, 5 9 in Ilford, and 7 1 in Bath, to 24 1 in Sunderland, 24 3 in Tynemouth and 26 3 in West Hartlepool The principal epidemic diseases caused 321 deaths, which corresponded to an annual rate of 0 9 per 1000, and comprised 123 from measles, 80 from whooping cough, 55 from infantile diarrhœa, 44 from diphtheria, 12 from scarlet fever, and 7 from enteric fever Measles caused a death rate of 1 7 in Norwich, 2 4 in Newport (Mon), and 3 0 in Wigan, and whooping cough of 1 3 in Norwich, 1 4 in Bootle, 1 6 in Darlington, and 2 6 in Stockon on Tees The deaths from influenza, which had declined from 392 to 259 in the five preceding weeks, further fell to 202, and included 45 in London 11 each in Birmingham and Sheffield, 10 in Bolton, 9 in Bradford, and 8 in Halifax There were 1951 cases of diphtheria, 1831 of scarlet fever, and 12 of small pox under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 1965, 1845, and 23 respectively at the end of the previous week The causes of 27 of the 4846 deaths in the 96 towns were uncertified of which 4 were registered in London and 2 each in Birmingham, Liverpool, St Helens and Sunderland

Scotch Towns —In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2¼ million persons, the annual rate of mortality, which had increased from 17 2 to 19 2 in the four preceding weeks, fell to 18 3 per 1000 The 438 deaths in Glasgow corresponded to an annual rate of 20 5 per 1000, and included 33 from influenza, 24 from measles, 4 from infantile diarrhœa, 3 each from small pox, whooping cough, and diphtheria, 2 from scarlet fever, and 1 from enteric fever The 100 deaths in Edinburgh were equal to a rate of 15 3 per 1000, and included 3 from measles, 2 from influenza, and 1 each from whooping cough and infantile diarrhœa

Irish Towns —The 215 deaths in Dublin corresponded to an annual rate of 27 0, or 1 5 per 1000 below that recorded in the previous week, and included 13 from whooping cough, 7 from measles, 4 from influenza, 3 from infantile diarrhœa, 2 from diphtheria, and 1 from scarlet fever The 158 deaths in Belfast were equal to a rate of 19 9 per 1000, and included 10 from influenza, 4 from whooping cough, 3 from infantile diarrhœa, 2 each from scarlet fever and diphtheria, and 1 from measles

Obituary.

SIR HENRY BURDETT, K C B , K C V O ,

EDITOR OF THE "HOSPITAL AUTHOR OF "HOSPITALS AND CHARITIES

ALL the medical profession will unite with us in regretting the not unexpected death of Sir Henry Burdett, which occurred on Thursday in last week as the result of a six months' illness, in his seventy-third year.

The son of a Leicestershire clergyman, Burdett began his strenuous life on a stool in a bank, but quickly manifested an interest in medicine, and was for a period a medical student both in Birmingham and in London But before completing his curriculum he found an outlet for his combined knowledge of business technique and hospital routine in the secretaryship of the Queen's Hospital, Birmingham To this post he was appointed at the early age of 21, and after holding it for six years was translated to the Seamen's Hospital, Greenwich, in a similar capacity. Here, also, he remained for six years, and so impressed the authorities with his industry, capacity, and power of organisation that he was appointed to the important post of secretary to the Share and Loan Department of the Stock Exchange In this position he remained for 17 years, and the work that he did there has left a permanent impression on the commercial life of the country, for he compiled "Burdett's Official Intelligence," a repository of information on Stock Exchange securities, and wrote many papers on Imperial, colonial, and municipal finance, and others illustrative of the influence of modern invention upon industrial developments It was during this time that his book entitled "Prince, Princess, and People ' appeared and attracted influential attention Written as a Christmas Number of the *Hospital*, it grew into a sketch of social progress and development, as illustrated by the public life and work of the late King and of Queen Alexandra, when Prince and Princess of Wales

If he had done no more than this he would be displayed as a valuable servant of the public, but Burdett is better known, not only to medical men but to the world, for his work in behalf of voluntary hospitals and the calling of nursing As hospital secretary he had at his fingers ends the real needs of these institutions and the best methods of securing voluntary assistance Over 30 years ago he saw that there was a middle class population, between those whose environment allowed of complete treatment in their homes and those who had a right to complete charitable assistance, for whom no institutional treatment was provided, and the result was the opening of the first hospital for paying patients in Fitzroy square Later he organised the first hospital conference, which led in 1884 to the institution of the Association of Hospital Managers In these efforts, which were revolutionary in many directions in their day, he secured, now and again with some difficulty, the coöperation of the *British Medical Journal* and THE LANCET, but later he founded his paper, the *Hospital*, more exactly to express the side of medical service with which he was personally acquainted, and to record the activities of hospital and nursing life. He had already been one of the earliest workers in the cause of the Hospital Sunday Fund, which was founded at the Mansion House in 1873 during the mayoralty of Sir Sydney Waterlow. The pattern for this great movement was supplied by the "Hospital Sunday" previously inaugurated by Canon Miller in Birmingham, and the translation of the idea to London, with its subsequent huge success, will always be associated with the names of Waterlow, Burdett, and the then editor of THE LANCET, James Wakley.

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[1] THE LANCET, April 10th i 829

In 1887 Burdett established the Royal National Pension Fund for Nurses, and although in his many efforts to organise a system of training for nurses his views were often challenged, what he did for the profession of nursing was immensely valuable, as everyone will admit who knows the history of the Pension Fund. And in yet another way he has placed the philanthropic world, as well as the medical profession, under a deep obligation, for in 1883 he brought out "Hospital Charities: a Year-book of Philanthropy," which has become the leading book of reference on all that concerns the organisation of hospitals and the life and work of their nursing staffs. It was right that such a man should receive public honour, and when Sir Henry Burdett was created K.C.B. in 1897, and K.C.V.O. some ten years later, no one who knew the devoted nature of his services thought that such rewards were over-generous.

Personally, Burdett was an interesting and attractive man. A former colleague writes of him:—

> Those who at any time worked in close association with Sir Henry Burdett and visited him at The Lodge, Porchester-square, knew him as a kindly, hospitable, home-loving man. Until quite recent years, when death took one after another from the home circle, he was singularly happy in his family life. One always found him in the large library on the ground floor overlooking the lawn, where he spent a large part of the day and did most of his work. Even in personal conversation he never could subdue the instinct for oratorical effect, for the dramatic pause with glittering eye and wide-armed gesture. His books and articles were dictated to an invisible audience, and, as a result, his literary work often had something of the diffuseness and floridity of platform speech, with the characteristic personal touch a little caricatured by cold print. Nevertheless, he was an accomplished and alert journalist, eager for the success of his papers, and well versed in the various branches of editing and publishing. His mind in general moved along large lines towards large objectives; but while he much preferred to depute the working out of details to others, he could, if need be, get down to the smallest parts of a big scheme, and handle them with bold dexterity. He was a man of strong and commanding personality; by no means an "intellectual," but with very great mental powers. The qualities that especially stand out in one's memory of Sir Henry Burdett are his unquenchable enthusiasm, the bigness of his ideas and projects, and his persuasive eloquence. As a colleague he was most kind, courteous, loyal, and considerate; he could not be shaken from his opinions, but when he said he would do a thing he kept his word.

To this intimate tribute we subscribe from our own knowledge. Burdett's courage, sincerity, and industry were remarkable, and the fruits of his qualities will be reaped by many to come.

He married in 1897 Helen, daughter of Mr. Gay Shute, who bore him two sons and two daughters, and predeceased him by a few months.

SIR KENDAL FRANKS, M.D., F.R.C.S.IREL.

Kendal Matthew St. John Franks, whose death in Johannesburg on May 1st is announced, was in his seventieth year. A native of Kilkenny, he took an Arts degree at Dublin in 1872, graduated in medicine three years later, and spent some time at Leipzig. Elected early to the staff of the Adelaide Hospital, Dublin, he became its senior surgeon, Vice-President of the Royal College of Surgeons in Ireland, and examiner in surgery at the University. The Boer War took him to South Africa as consulting surgeon to the forces from 1899–1902. He was rewarded with a C.B. and then settled in Johannesburg, where he became honorary surgeon to the hospital and president of the South African Committee of the British Medical Association. He received a knighthood in 1904.

Correspondence.

"Audi alteram partem."

X RAY DATA IN DIAGNOSIS OF CARDIAC ENLARGEMENT.

To the Editor of THE LANCET.

SIR,—It appears that certain methods of detecting and estimating cardiac enlargement by means of the X rays (I find from letters I have received) are by no means generally known, although two of them, (B) and (C), in the *Archives of Radiology and Electrotherapy*, of May, 1919, are referred to as having appeared in THE LANCET of Nov. 30th, 1918 (p. 750). These methods, as carried out by me, three in number, are as follows:—

(A) *The "Cardio-Thoracic Ratio."*[1]—With the focus of the X ray tube at a distance of 6 feet (but 2 feet is just as good), the greatest transverse heart diameter (calculated by adding the part-diameter of heart in right fourth intercostal space to right of median line to the part-diameter in left fifth space to left of median line), should normally be 39–50 per cent. of greatest diameter of thorax, in mid-inspiration. Over 53 per cent. in adults is pathological.

(B) *The "Index of Depth."*—With tube-focus at a distance of 2 feet, an exposure is made—of a half second is best—the tube is moved 10 cm. to right and a similar exposure is made on same X ray plate (or better, a Dupli-Tized film with two intensifying screens). Two impressions of diastole of heart are seen after development. In the adult an apex-displacement of 7–14 mm. is normal (20 mm. and above is pathological).

(C) *The "Angle of Disappearance of the Apical Shadow."*—With the fluorescent screen on the dorsum, rotate patient's body in the upright screening-stand until cardiac apex coincides with spinal apophysis; measure the angle made between the bi-scapular line and the screen-surface. If of 25–30° it is normal, over 30° indicates augmentation of the ventricular volume.

As regards (B), the ideal exposure is for the time of one cardiac cycle, not more and not less, as far as possible. What is wanted is two well-defined impressions of two separate diastoles.

(C) A simple goniometer is made from two 10 by 6 plates covered with thick paper and hinged; the exact angle is easily measured with it.

The ortho-diagraphic and telephotic methods are of course well known.

I am, Sir, yours faithfully,
C. FRED. BAILEY.

Royal Sussex County Hospital, Brighton,
May 1st, 1920.

BLIND MASSEURS.

To the Editor of THE LANCET.

SIR,—In your issue of April 17th, there appeared a letter from Miss Magill on the subject of blind masseurs. With reference to the early paragraphs of her letter I need only say that the writer gives expression to opinions which are not shared by all authorities, as has been clearly shown by the recent correspondence in your journal. With regard to Miss Magill's statement that the sighted workers in a large department invariably find that they have extra labour thrown upon them where a number of workers are blind, this I can assure your readers is by no means the experience of officials in establishments where blinded soldier masseurs are employed.

Miss Magill next dwells upon the depressing effects upon the patients of the ministrations of blind masseurs. In regard to this, and to the efficiency of blind masseurs generally, I cannot, I think, do better than quote from a letter which I have received from Major-General Sir Robert Jones, C.B., F.R.C.S., L.R.C.P., which states:—

> "The work that your blind masseurs do is very exceptional in quality. They are in every sense of the term a great success. I find them all intelligent and possessed of a wonderful gift of touch, together with keen enthusiasm for their work. Apart from their qualities as masseurs, I think they have an extraordinarily good psychological effect upon their patients. I consider institutions which secure the services of these men trained at St. Dunstan's very fortunate."

Archiv. Rad. and Elect., February, 1920, p. 301.

Miss Magill ends her letter by saying that blind masseurs are apt to feel their work to be more than they can accomplish. In regard to this, I can only say that I am in very constant communication with the great majority of the blinded soldiers who have been trained as masseurs at St. Dunstan's, and that I have never heard anything of this kind from any of them. It may be that Miss Magill refers to the two cases of men who, when they got into actual work, found that their health was not sufficiently good to endure the strain which the active practice of massage involves But 2 out of 92 is not a very large percentage, is it?

I am, Sir, yours faithfully,

ARTHUR PEARSON.

The Association of Certificated Blind Masseurs,
Great Portland street, W , April 26th, 1920

To the Editor of THE LANCET.

SIR,—In THE LANCET of April 17th there is a letter from Miss E M Magill on the above subject. The letter abounds in sweeping generalisations, but I sought in vain for a statement verified by fact. For instance, the following paragraph appears —

> "I should like to point out that the sighted workers in a large department *invariably* find that they have extra labour thrown upon them where a number of the workers are blind, as it is *universally admitted* that special cases have to be picked out for the latter " (The italics are mine)

Now as I have had charge of the physical treatment departments at Alder Hey for nearly four years, when many thousands of cases have been treated by massage, at times as many as 600 treatments being given daily in the massage department, I may claim to speak for a "large department." Further, we had six blinded masseurs from St. Dunstan's on the staff of this department. I most emphatically deny that any of the workers had extra work thrown on them because of the presence of blinded masseurs. Indeed, the reverse was the case, as cases requiring especially vigorous treatment were spared the masseuses, and given to the masseurs I might also add that certain cases *must* be treated by a masseur, as it is obviously inexpedient for them to be manipulated by a masseuse. Further, I deny strongly that "special cases have to be picked out for the blind masseurs " As a matter of fact, if there has been any "special selection " it has occurred when a particular case required especially careful and skilful massage. Such a case was invariably allotted to the head blinded masseur, whom I considered by far the best exponent of the art amongst the staff. So that in fact the *masseur* was "picked out" for the case

A very important point in the treatment of soldiers and pensioners by blinded masseurs is the psychic element There is comfort, sympathy, and that "fellow feeling which makes one wondrous kind" in the knowledge that one wounded pensioner is being treated by the whole hearted efforts and enthusiastic endeavours of a fellow-disabled pensioner, and who can deny that this mental concomitant to the massage has not an efficacious influence on the treatment? Very frequently have I had a request from a patient to be allocated to a blinded masseur. Still, Miss Magill states in her letter that "many medical men tell her that frequently patients object to being treated by blind masseurs " Such has not been my experience I must candidly admit that when it was first suggested that a blinded masseur should be included in the staff at Alder Hey I was sceptical as to the practicability of such an experiment; but when I found what capable, careful, enthusiastic and skilled workers were turned out by St. Dunstan's, I was ashamed of my scepticism, and thereafter it was my constant endeavour to obtain more blinded masseurs. I was extremely fortunate in obtaining six of them, and a more loyal, industrious, and capable sextet it would be impossible to find. Frequently Sir Robert Jones, as well as other surgeons on the staff at Alder Hey, expressed eulogistic opinions with regard to the results of the treatment by the blinded masseurs

From the above remarks it will be understood that I feel it incumbent on me to resent unkind and unfair attacks which are calculated to traduce their ability, and to militate against their chances of obtaining an honest livelihood in a calling for which they are capably trained, and in which their tragic disability proves to be no hindrance

Finally, may I adduce one further proof of my contentions? Several months ago—I am proud to say at my instigation—a clinic was opened at Liverpool for massage, remedial exercise—and electrical treatment, and staffed by four blinded soldier masseurs. I am glad to state that they have had a remarkable number of patients, both private and pension cases, and have had signal success That there has been success I am prepared to vouch for by the testimony of patients themselves, as well as the medical men who have sent them. As a last word may I have Miss Magill's permission thus to paraphrase the old adage, "De militibus cæcatis nihil nisi bonum"?

I am, Sir, yours faithfully,

W. H. BROAD, M D.,
Major, R A M C (T F)

Rodney street, Liverpool, April 24th, 1920

To the Editor of THE LANCET.

SIR,—In fairness to other candidates, may I be allowed to comment on Sir Arthur Pearson's letter in your issue of April 24th? It is there remarked that "in the recent *examinations* of the Incorporated Society of Trained Masseuses" a blinded soldier from St Dunstan's "passed first *in all subjects*," a statement which would seem to imply that the same candidate passed first in all three examinations. The man in question did excellently in the examination in massage, and headed the list of successful candidates, the marks in the separate subjects of anatomy, theory and practice of massage not being published. In the special examination in exercises as an adjunct to massage, held for blind candidates only, a fellow student from St Dunstan's gained the first place, whilst, as is no doubt well known to many of your readers, our examination in medical electricity is not open to the blind —I am, Sir, yours faithfully,

E W. BLISS,
Chairman of Council, Incorporated Society of Trained Masseuses

157, Great Portland street, W ,
April 28th, 1920

*** The question has been sufficiently discussed It is clear that the blinded soldier makes an admirable masseur, that there must be circumstances in which he is at a disadvantage; and that all engaged in the organisation and employment of massage share in deep sympathy for the honourably wounded and in determination to give them full opportunity for their large range of valuable service.—ED. L

BRADFORD'S MUNICIPAL HOSPITAL SCHEME

To the Editor of THE LANCET.

SIR,—In your leading article on Hospital Principles you allude to the establishment of a municipal hospital in this city. May I inform you that the chairman of Bradford Corporation Health Committee, at an interview granted by request to some members of the staffs of our voluntary hospitals, gave us to understand that he himself has no intention or wish to do more than supplement the work of the voluntary hospitals by the municipalisation of St. Luke's? At present that step will add only some additional 150 or 200 beds to those already required for other purposes (maternity, venereal, children's, infants', and so forth), a number, of course, totally inadequate for Bradford's needs He therefore does not see that the voluntary hospitals will be much or soon affected by the scheme The chairman's view and desire is one thing; the march of events is quite another. When one set of hospitals can draw on the rates compulsorily for their support, while others depend on freewill offerings, there can be little doubt that in a short time the rate supported hospitals will choke the others.

In my judgment we ought to have settled questions of principle before considering details; and the question of principle is: Has a sick person, whatever his means, a right to demand free attention at the cost of his town or country and when did he obtain such right: If he does so, is he not a pauper, even if he is not called so? If so, ought he to have the right of voting his own subsidy and of determining the scale on which it is to be provided? Is not the granting of such a right a danger to the town and to the State?

I am, Sir, yours faithfully,

Bradford, May 1st, 1920. A. RABAGLIATI.

INFANTILE DIARRHŒA AND VOMITING.

To the Editor of THE LANCET.

SIR,—As Dr. G. Douglas Sherwood says, in his paper in THE LANCET of April 24th, now is the time when "the preservation of infant life becomes of the utmost importance," and with your permission I respectfully suggest a cause other than infectivity. The disease primarily affects children at an age when the skin is unpigmented and has no power of producing pigment. Its seasonal incidence corresponds to the greatest amount of sunlight—that is to say, a comparative absence of sunlight corresponds to absence of this disorder. The diarrhœa and vomiting of very young children is more common in the bottle-fed than in the breast-fed, and may be accounted for by the breast-fed receiving more maternal care than the bottle-fed.

The similarity between the method of attack of this disease and sunstroke points to their being due to the same cause. Children are frequently attacked by the disease after many hours' removal from the sunlight, just as most of the cases of sunstroke among our soldiers in India occur in the night. Therefore I suggest that the electrical effect of light penetrating the skin may cause a dissociation of the metal calcium in the blood. It is well known, and has been known for many years, that the regular administration of lime-water to infants during the summer months is a valuable prophylactic.

I am, Sir, yours faithfully,

Didsbury, Manchester, May 1st, 1920. R. CRAWSHAW HOLT.

THE RELATION OF GENERAL MEDICINE TO OPHTHALMOLOGY.

To the Editor of THE LANCET.

SIR,—In the interesting and revealing letter printed in your issue of May 1st Mr. Charles Higgens relates a number of instances in which ophthalmic surgeons have been able to recognise that some of the local conditions which come under their observation are associated with, and in particular instances dependent on, more or less remote disturbances or generalised pathological states. In accordance with a healthy professional tradition these observations, and the lessons to be drawn from them, have been placed at the disposal of the medical profession, with obvious advantages both to practitioners and to patients. Mr. Higgens may well claim gratitude both for himself and his colleagues, and personally I was under the impression that so generally was this claim allowed that there could be no need to repeat it. As it appears Mr. Higgens considers repetition necessary, I shall not dispute his better judgment. Whether, however, the beginning of knowledge in this direction was really so recent as 1888 (the date Mr. Higgens selects) may be doubted, and a similar remark applies to the suggestion that the debt is due entirely to the ophthalmic surgeons. To take but a single example. I have before me a book of some 400 pages entitled, "The Use of the Ophthalmoscope in Diseases of the Nervous System and of the Kidneys; also in Certain other General Disorders," and this was published, not in 1888, but in 1871; and its author is the physician who, amongst other distinctions, now occupies the Regius Chair of Physic in the University of Cambridge. In these circumstances I for my own part cannot confine my gratitude to the narrow circle which Mr. Higgens defines. There were brave men before Agamemnon, and, to adapt the phrase to the present issue, not all of those worthy of fame-boasted the art and craft of ophthalmic surgery. If Mr. Higgens will consult the book whose title I have quoted he may perhaps (though the ophthalmic surgeon has "no use" for the physician) be led to doubt whether the unqualified statement that "albuminuric retinitis is a late symptom and its occurrence is a sign that the patient is approaching his end" is quite such an accurate contribution to medicine as its dogmatic form proposes.

To pass from historical performances to the present position, Mr. Higgens, from the fashion in which he uses the terms "ophthalmologist" and "ophthalmic surgeon," would appear to regard ophthalmology and ophthalmic surgery as equal and synonymous terms. How such a proceeding can be justified I am at a loss to imagine, and it may find a practical criticism in the fact that to a recently founded lecturership in ophthalmology there was appointed but the other day a professor of anatomy, and that the predecessor of this gentleman was a physician. Everyone is ready, and more than ready, to recognise the values and triumphs of the ophthalmic surgeon, but to present him as the possessor of an exclusive interest and capacity over the whole field of ophthalmology is to approach perilously near the region of the ridiculous.

I am, Sir, yours faithfully,

Harley-street, W., May 3rd, 1920. C. O. HAWTHORNE.

LICE AS A CAUSE OF RINGWORM.

To the Editor of THE LANCET.

SIR,—I was very much interested in Dr. A. E. L. Wear's letter in THE LANCET of May 1st suggesting a causal relationship between lice and ringworm. It is certainly very probable that head-lice can and do act as carriers of the spores of the *Microsporon audinii*, but before accepting this as the only, or even main, mode of infection I would submit with due deference that the logic of the argument seems somewhat strained. With two such common conditions the class most likely to be infected with either or both is the same—namely, those people whose heads receive least attention from soap and water, or brush and comb; and these are the sufferers—the children in the elementary schools.

Again, anyone who sees large numbers of children suffering from lice or ringworm of the head must have been struck by two facts—namely, that the site of predilection for ringworm is a wide band running along the vertex of the scalp, whereas the site of predilection for pediculi capitis is the occiput. I agree with Dr. Wear that the question of the infectivity and incidence of ringworm of the head is one of some importance, but I am inclined to think that it is not quite the simple problem his letter suggests. For instance, in my experience ringworm is much commoner in blondes than in brunettes (allowing for the preponderance of the blonde type in England), and in those with straight hair than in those with wavy or curly hair. Also ringworm dies out at puberty or thereabouts; the spores seem unable to find their natural pabulum on adult heads, but pediculi do not by any means forsake the heads of adolescence or even maturity.

I am, Sir, yours faithfully,

Sheffield, May 3rd, 1920. E. F. SKINNER.

DEATH OF DR. H. M. ALLEN.—Dr. Henry Marcus Allen, who died at Avonmore-road, Kensington, on April 23rd, after an illness of over two years' duration, was formerly a well-known practitioner in Brighton. He was a son of Mr. Thomas Marcus Allen, and of a Somersetshire family. Born in 1844 at Brighton, Henry Marcus Allen spent his boyhood there, and at 14 became one of the original members of the 1st Sussex Rifle Volunteers, sworn in at the Town Hall in 1858. After spending some time at Oxford and Paris he entered St. Bartholomew's Hospital, where he qualified L.S.A. and M.R.C.S. in 1871 and held the posts of house physician, resident physician-accoucheur, and obstetric assistant. Two years later he was admitted a Member of the Royal College of Physicians of Edinburgh, and was elected a Fellow in 1882. In Regency-square, Brighton, where he started to practise, he won a large connexion, besides holding a number of appointments. Subsequently he moved to Hove, and latterly practised at East Sheen. Although it is many years since he lived in Brighton and Hove, Dr. Allen had not been forgotten, and his death was regretted by a large circle of friends and former patients. The funeral took place at the Parochial Cemetery, Brighton

The Services.

ROYAL NAVAL MEDICAL SERVICE

Surg Lieut G A M Anderson is promoted to Surgeon Lieutenant Commander

ARMY MEDICAL SERVICE

Col W E Hardy retires on retired pay

Temp Col Sir A Chance relinquishes his commission and retains the rank of Colonel

ROYAL ARMY MEDICAL CORPS

Lieut Col B Forde is placed on retired pay

The undermentioned Lieutenant Colonels retire on retired pay S J C P Perry, W L Baker, J G Churton, T Biggam, H A Davidson

Major N D Walker to be temporary Lieutenant Colonel whilst specially employed

The undermentioned relinquish the acting rank of Lieutenant Colonel Majors T J Potter and P C T Davy, Capt C H K Smith

Major M P Leahy is placed on retired pay on account of ill health caused by wounds

The undermentioned relinquish the acting rank of Major Capt A E Richmond, Temp Capts C D Faulkner, B Knowles O R L Wilson, J R Griffith, D Fisher

Capt W T Hare resigns his commission and is granted the rank of Major

A L Aymer, late Captain R A M C, to be Captain

Lieutenants (temporary Captains) to be Captains G H Barry, M McG Russell, F G L Dawson

To be temporary Captains G Cock late temporary Captain, E S Joske, late Captain A A M Corps, H Bell, late Can A M C

Officers relinquishing their commission —Temp Majors retaining the rank of Major W S Haughton H E L Canney Temp Capt J E Ainsley, on transfer to the Indian Medical Service Temp Captains granted the rank of Major H N Webber S E Picken N E Kendall, C C de B Daly, R Massie, J H Peek Temp Captains retaining the rank of Captain J S K Smith S W H Stuart, A E Sanderson, V D Pennefather F Shearar, G B Buckley, A P Mitchell, A H Holmes J F O Mahoney, R G Higgen, G H Winch, R L Hughes C R Macleod, C C Brewis, A Hines S Broderick, H Hannigan, D F Brown, L W Evans R C Poyser, R B Johnson, T J Cobbe, B C Haller, E D S Heyliger, P Black, W Forsyth, W N H Bell, D J Bedford, J S Williamson J Lascelles, T D Miller, J L Meynell, H W Hues R Hodson E G B Carpenter, E R Holborow J J Robertson W S I Robertson, M Dockrell C L Spackman J H Marshall W G Hopkins, T R Fulton, S W Milner, A C Meek J M Anderson, D O Richards H S Stockton, T G Elsworth, H G Parker, T B Vaile, W J F Symons N B Laughton, C C Okell

SPECIAL RESERVE OF OFFICERS

Capt C Nicholson relinquishes the acting rank of Major

Capts J P Charnock (granted the rank of Major) P F A Grant, F Griffith, L K Ledger, G R McRobert E W Mann relinquish their commission

TERRITORIAL FORCE

The undermentioned officers to be Lieutenant Colonels and to command the Field Ambulance Majors J M G Bremner (2nd East Anglian) D Rorie (Bt Lieut Col) (2nd Highland), E B Bird (Bt Lieut Col) (3rd Wessex) A E Kidd (3rd Highland), A Callam (2nd East Lancashire) E H Cox (3rd East Lancashire) J W Leitch (1st Lowland), J W Keay (3rd Lowland), T A Barron (1st North Midland), D L Fisher (2nd Northumbrian), P R Ash (3rd Northumbrian) F Whalley (2nd West Riding) T Donovan (1st Welsh), C L Isaac (3rd Welsh) Capts J F MacIntosh (1st Highland), A T Falwasser (1st Home Counties) H G G Mackenzie (3rd Home Counties), C S Brebner (1st London), R E Bickerton (2nd London), R M Vick (3rd London), J MacMillan (5th London) H K Dawson (6th London), J F Dixon (2nd North Midland), J Miller (3rd North Midland), R A Broderick (2nd South Midland), T A Green (3rd South Midland), W Lister (1st West Riding)

Major W G Mitchell is restored to the establishment

Capt F R Humphreys to be Major

1st Western General Hospital Capt T P McMurray is restored to the establishment

ROYAL AIR FORCE

Medical Branch —Lieut Col G N Biggs (Major, R A M C T F) relinquishes his temporary R A F commission on return to Army duty and is permitted to retain the rank of Lieutenant Colonel

Capt C E Thwaites is transferred to the unemployed list

Parliamentary Intelligence.

HOUSE OF LORDS

WEDNESDAY, APRIL 28TH

EXPERT INQUIRY ON SHELL SHOCK

Lord SOUTHBOROUGH called attention to the different types of hysteria and traumatic neurosis, commonly called "shell shock," from which many soldiers suffered during the war, and referred to the death penalty inflicted upon men by courts martial on the charge of "cowardice" (without inviting any reopening of the evidence in such painful cases), and moved that the Government should make inquiry either by a Select Committee of the House of Lords or by a Departmental Committee into the expert knowledge derived by the army medical authorities and the medical profession with the object of recording for use in time to come the experiences of the war, and to advise whether by military education or otherwise some scientific method of dealing with such cases could not be devised He said this was a vast and complicated subject which must be approached with care and circumspection The subject of shell shock could not be referred to with any pleasure All would desire to forget it—to forget the cases extraordinary and mysterious, with which we had been confronted, to forget the roll of insanity suicide, and death, to bury our recollections of the horrible disorder, and to keep on the surface nothing, but cherish the memory of those who were the victims of the malignity But they could not do this, because a great number of the cases of those who suffered from shell shock and its allied disorders were still upon our hands and deserved our sympathy and care

The Identification of Shell Shock.

It was also our duty carefully to record all the knowledge and experience acquired by our medical and administrative authorities He was inclined to think that the disorder now called shell shock ' must have occurred in some of the fierce and bloody battles of the past and that among its victims were many whose condition was never properly understood and who suffered the penalty of death He believed that he was right in saying that whatever might have been the diagnosis at the beginning of the war there was now a fairly general consensus of opinion here, in France, and in America, that they were cases of varying and differing types of hysteria or traumatic neurosis common and well known in civil life well understood by medical practitioners and frequently met with in railway and other violent accidents If it was a fact that a true identification of the disorder was wanting in the early months of the war he feared that through inadvertence and want of knowledge dreadful things might have happened to unfortunate men who had in fact become irresponsible for their actions

Shell Shock and Hysteria

It was clearly not long however, before our army medical authorities in common with the French, fully realised the gravity of the disorder and appreciated that if one understood hysteria they were well on the way to understand "shell shock ' This was all for the good but it did not in fact lighten responsibility, for hysteria was a very serious and dangerous malady, and not only did it present itself in various forms and types, but it became in a sense contagious because men became open to suggestion through expectation And only too often such expectations were realised If it might be assumed that 'shell shock was now recognised to be a type of hysteria differing but little from the traumatic psycho neurosis observed in civil life then it should be amenable to the same therapeutic measures both for prevention and cure These and other matters relating to treatment offered an interesting field for inquiry evidence, and records There was evidence that ' shell shock " or hysteria was not confined to the untrained soldier This meant, no doubt that in some cases after wear and tear the nervous system refused to do more But it also meant that the seasoned soldier had probably suffered already from shell shock had been invalided, and then returned to the front Was it not worth while to inquire whether when a man had been badly damaged by 'shell shock," it was safe either for himself or his colleagues to allow him to return to the fighting line? There were many thousands of cases of shell shocked men discharged to pension or invalided out of the service Some investigation, not of individual cases but of classes of cases might be expedient In quasi mental cases he could imagine no more miserable fate for a patient than a continued course of absolute idleness and the health and condition of a large number of men doing nothing but draw their pension might be greatly improved by an organisation designed to give them a little work as a beginning He feared there were a number of cases of mental type so severe that the hope of the restoration of the mind had practically been abandoned. Were these to be permanently kept in homes, and was the treatment there the most desirable for them? Again, was it wise that various classes of the disorder should be mingled together? The real question in cases of dereliction of duty was whether there was loss of will-power. What power had the courts-martial to make inquiry into the condition of the man's mind? It was obvious that in cases of hysteria to ascertain truly the condition of the prisoner's mentality and will-power was of the first importance. He gathered that where a plea of insanity was entered at a court-martial the medical officers were not allowed to report generally on the prisoner's state of mind. The man, possibly one with a low order of mentality, might have entirely lost his wits on the day of the battle, and a few weeks later might have practically recovered. In recent years, through the humanity of the judges and the establishment of the Court of Appeal, the rules in McNaughton's case —the case of the murderer of Drummond, Sir Robert Peel's secretary—had been relaxed and the judges had approached the position that responsibility might be abrogated by loss of control if arising from mental disease or infirmity and not through the accused person's own conduct. But it would appear to be otherwise under military law, under which, if the defence of insanity was raised, it could only be resolved by a rigid application of the McNaughton rules.

Military and Civil Considerations.

Inquiry might fairly be made as to whether the military and the civil law should not be put upon the same footing. Was it possible, the noble lord asked, to prepare the minds of soldiers against the disasters of hysteria and neurosis? Dr. Morton Prince, a distinguished physician of Boston (Massachussetts), had given great attention to the subject at home, at the base, and in the hospitals of France and England. He was of opinion that it might be driven into a soldier's mind as part of his ordinary training that "shell shock" was a form of hysteria, due to his own thoughts and fears, and external suggestion arising from the condition of the modern battlefield, and that as long as he received no physical injury there was little danger to be apprehended from the disasetr. The efficiency of the army and of future armies might well be impaired by shell fear (as they called it in America), and it was worth considering whether some method of giving confidence by training and education might not be devised by a committee. Upon the committee of inquiry it would be important to have the best army medical representation that could be found, and he suggested that their lordships' House might be represented by Lord Dawson of Penn, until recently Sir Bertrand Dawson. Two representatives of the House of Commons would also be important. A naval medical officer might be put on the committee, as the results of shell fighting at sea were distinctly different from those of shell fighting on shore.

Lord Horne's Views.

Lord HORNE, as a general officer who had commanded large forces in the field, cordially supported Lord Southborough's motion. He was convinced from his own personal experience that there was a tremendous field of research open to any committee established with the object referred to by the noble lord. In the later part of the war if there was the shadow of a suspicion that a man's crime might have been caused by any of the forms of hysteria which were included under the term "shell shock" he could confidently state that the sentence was not confirmed until the accused had [illegible] under the observation of medical authorities or detained for a time at one of the detention establishments and given every opportunity of allowing those in authority to arrive at a decision, whether his mental balance had in any way been affected or not. He was much struck by the suggestion that an inquiry by a competent committee might lead to some form of mental exercise that would enable them to train soldiers to endure the nerve-shattering conditions which led to this form of "shell shock." Personally, he thought it was extremely probable that some methods might be devised which would lead to that end. But the term "shell shock" should not occupy people's minds too much, because many of those whose mental balance gave way during the war did not lose their self-control from anything to do with a shell, but from the general effects of extreme tension on a highly organised nervous system. It was those, possibly, of the lower mentality and lower organisation; those whom nature had endowed with a more easy-going temperament, who were less likely to suffer from any form of "shell shock." Fear, after all, was met by whatever effort was necessary to control the nerves. Under the novel conditions of a modern battlefield there was no man who did not suffer from fright. The man who got through was the man who retained the power of controlling his nerves.

The Need for Special Medical Advice.

Viscount HALDANE said he agreed with the grounds stated by Lord Southborough, but he was not quite sure that the remedy he proposed by his motion was right. It was now known that want of mental control was in a good many cases the result of an actual physical cause. For instance, the shock of an explosion might physically inhibit the action of the nerves which controlled breathing; the supply of oxygen to the blood, and therefore to the brain, might be impaired. The result was that the individual was for the time being, and perhaps for some time after, a different personality. There was much more than a question for the ordinary experts. All that could be done, he thought, was to collect the very valuable body of evidence which had been got together lately. There were investigations at the Taplow Hospital, under the direction of the War Office, which were of the utmost value, and others had been going on all over the country. He agreed that the matter required the closest investigation. It had too often, however, been the custom because a man was a very eminent medical man to ask him to investigate a branch of a very great science which had ramifications with which he was not familiar. In a matter of this kind they ought to get together a small body of picked men of the highest eminence in this particular branch of investigation. A small investigating committee of this kind brought together by the War Office, could, roughly, at all events, lay down certain standards.

Expert Inquiry Granted.

Viscount PEEL (Under Secretary for War), replying for the Government, said that the instructions to courts-martial during the war were that where the soldier in his defence or in mitigation of punishment urged a substantial plea on medical grounds a medical witness was invariably to be called either to substantiate or rebut the case before the finding, if it was in defence, and afterwards, if it was urged in mitigation of punishment. In practice the court adjourned and a medical board was held; and on the adjourned hearing one or more members of the board would be called to give evidence as to the facts observed and their conclusions on these facts. A mental specialist was always included if their was any suggestion of "shell shock" or any other kind of mental or nervous derangement. A medical board was always held before any action was taken to confirm a death sentence. The number of cases in which such sentences were carried out was exceedingly small. For cowardice 18 death sentences were carried out and 266 for desertion. The total number of death sentences carried out was 343, whereas the total number of such sentences passed on officers and men was 3076. As regards the request for an inquiry, the view of the Government was that great advantages might be obtained from such an investigation. Many of the nervous and mental conditions encountered were entirely new to many of the medical officers concerned, and there had been a great many expressions in different medical journals of their individual views on the subject. It was thought that it would be of great value if these different views could be gathered together and thoroughly investigated by such a committee as had been suggested. The composition of the committee was a matter for consideration later. Besides experts in the particular subject, it might be considered whether from the discipline side a lawyer and a soldier might also be included.—The motion was agreed to.

HOUSE OF COMMONS.

WEDNESDAY, APRIL 28TH.

Indian Medical Service Pensions.

Colonel YATE asked the Secretary for India if he could now state what increase was to be made in the pensions of the widows, children, and dependents of deceased officers of the Indian Army, the Indian Medical Service, and the Royal Indian Marine.—Mr. MONTAGU replied: I am still awaiting the views of the Government of India. I have again impressed on them that the matter is urgent.

Contaminated and Infectious Stores.

Mr. JOHN DAVISON asked the Minister of Health whether he had received any resolutions of protest from the various trade-unions and other organisations in the district of Bow and Bromley strongly protesting against the dumping of infectious and contaminated surplus stores of Government war materials in that district, and demanding that all such stores deposited there should be destroyed at once and no further quantities allowed to be landed in this country as, in their opinion, this dumping was responsible for the outbreak of small-pox in that district; and whether he could state what action he proposed to take in the matter.—Dr. ADDISON replied: I have received a resolution of protest from the Bow and Bromley Local Labour Party in regard to this matter. The stores referred to are in course of removal, and it is expected that the removal will be completed by the end of next week. These stores will be thoroughly disinfected and deposited in premises which have been secured for this purpose outside London. The disinfection is being carried out under the supervision of one of the medical officers of the Ministry of Health. I am informed that no stores belonging to the Ministry of Shipping which are known to be infected are allowed to be placed in store until they have been adequately disinfected.

The Supply of Midwives

Mr **BRIANT** asked the Minister of Health if he would state the number of practising certified midwives in the United Kingdom and the approximate number required for the proper care of maternity cases, and what steps, if any, the Ministry proposed to take in order to secure that an adequate supply of midwives should be available.—Dr **ADDISON** replied in a written answer According to the last report of the Central Midwives Board the number of women entitled to practise as midwives on March 31st, 1919, was 44,166, but the number who gave notice of their intention to practise in 1918 was only 11,298 No useful estimate can be made of the total number of midwives required The shortage which exists in some districts is due to the fact that the number of cases within reach is too small to enable a midwife practising independently to make a living The Ministry have continued the policy of the Local Government Board of urging local authorities and nursing associations to subsidise midwifery in the more scattered districts and of paying grants in respect of such subsidies By this means the proportion of the rural population served by trained midwives has increased since 1917 from 51 per cent to 65 per cent, and steady progress is being made Nearly all the county councils and county nursing associations have framed schemes for extending the midwifery service of their counties A number of local authorities in urban areas have also, with the assistance of the Ministry, subsidised the provision of trained midwives in parts of their districts in need of this service A grant in aid of the training of women as midwives has been authorised, and is being administered by the President of the Board of Education

After Care of Consumptives

Major **ENTWISTLE** asked the Minister of Health whether his attention had been drawn to the report issued by the Kingston upon Hull Insurance Committee dealing with the administration of sanatorium benefit for the year ending Dec 31st, 1919, in which it was pointed out that a large proportion of the number of persons who applied for sanatorium benefit died within a comparatively short period after treatment where such treatment was not followed up by effective after care, whether he was aware of the striking improvement which had taken place in Hull since the establishment of an after care committee, and, if so, whether it was the policy of the Minister in his scheme for combating tuberculosis that after care would form an integral part thereof and receive liberal financial encouragement from Imperial sources.—Dr **ADDISON** replied The answer to the first three parts of the question is in the affirmative As regards the last part, the financial arrangements in connexion with the scheme for combating tuberculosis are under consideration

Diet and Clothing for Tuberculous Ex soldiers

Mr **RUPERT GWYNNE** asked the Pensions Minister whether his attention had been drawn to the fact that it was not generally known among ex Service men suffering from tuberculosis that they were entitled to extra diet allowance, and special bedding and clothing where necessary, and if he would give instructions to local War Pensions Committees to have this information more widely circulated —Major **TRYON** replied Inquiries which have been made do not support the suggestion contained in the question Moreover, the conditions under which special diet and clothing can be provided are fully set out in the Local War Pensions Committee Handbook, copies of which have been supplied gratis to the headquarters of the various ex Service men's associations The handbook is now being placed on sale, and the local branches will thus be enabled to obtain copies for the information of their members

Mr **RUPERT GWYNNE** asked the Pensions Minister whether he could see his way to issue instructions for extra clothing and bedding to be given from time to time to all ex Service men certified to be suffering from tuberculosis instead of providing it on loan in certain cases —Major **TRYON** replied Where open air home treatment is ordered extra blankets which are certified to be necessary are supplied, but not on loan, nor is the cost recovered Extra clothing is provided as an incident of treatment and not in supplementation of pension, but in certain cases men have expressed the wish to purchase clothing on the termination of treatment, and the question whether this would be practicable is being considered

THURSDAY, APRIL 29TH

Insanitary Pensions Offices at Hastings

Mr **JOHN DAVISON** asked the Pensions Ministry whether he had received any complaints from the staff of the Hastings War Pensions Committee and Medical Referees protesting against the insanitary condition of the offices occupied by that staff and committee, whether he was aware that the medical referees who had held examinations of disabled men in the building unanimously condemned it on account of the unhealthy atmosphere, and on some occasions refused on that account to examine men suffering from open wounds, that these premises were for some years occupied by a department of the Corporation, but that, in consequence of excessive absences through sickness of the members of their staff, the Corporation decided to vacate them, and whether, in view of the unsuitability of these premises as offices and their general unhygienic condition, he would make inquiries into the matter, with a view to securing accommodation in a more healthy situation —Major **TRYON** replied The answer to the first part of the question is in the affirmative The suitability of the accommodation now in occupation by the Hastings War Pensions Committee has been under the consideration of the First Commissioner of Works, who is, I understand, endeavouring to secure other accommodation

MONDAY, MAY 3RD

Orthopædic Cases in Birmingham

Mr **HALLAS** asked the Minister of Health whether he was aware that the Discharged Soldiers' Committee of the Citizens' Committee of Birmingham was finding difficulty in dealing with orthopædic cases in consequence of the massage staff being too small, and whether he could provide the necessary relief —Major **TRYON** (Parliamentary Secretary to the Ministry of Pensions) replied There are a number of vacancies in the Ministry of Pensions Massage Service, but it is expected that these will shortly be filled The necessary additions to the staff at Birmingham will be made as soon as possible

Blind Members of Advisory Blind Committees

Viscountess **ASTOR** asked the Minister of Health whether instructions had been issued to all local Advisory Blind Committees to have among their members one blind person elected as a representative of the blind in the committee's area, and whether, if a local committee failed to comply with these instructions, or, while appointing a blind representative, failed to summon him to meetings of the committee, any steps could be taken by the Minister to enforce his wishes on the local committee —Dr **ADDISON** replied In reply to the first part of the question I gave instructions, on the advice of the Central Advisory Committee, that wherever practicable vacancies occurring in these local committees should be filled by blind persons until at least one third of the committee (excluding representatives from local authorities) were blind persons, and this proportion has not been reached in nearly all cases As regards the latter part of the question, the final appointment of members rests with me, and if the honourable Member will furnish me with particulars of any case in which a person so appointed has not been summoned to meetings I will have this matter looked into and dealt with.

TUESDAY, MAY 4TH.

Foreign Service Roster for Medical Officers

Lieutenant Colonel **BUCKLEY** asked the Secretary for War and Air if he would state what method of selection was adopted in detailing Royal Army Medical Corps officers for duty in India, whether a roster of previous service at home was maintained, and whether consideration was given to service in the theatres of war in detailing officers for India —Sir A **WILLIAMSON** (Financial Secretary to the War Office) replied A foreign service roster for officers of the Royal Army Medical Corps is kept Officers are detailed for service in garrisons overseas in accordance with this roster except in the case of any officer who, on account of special qualifications which he may possess, is required for special duty in the United Kingdom When an officer who has completed a tour of service in India again becomes due for foreign service every endeavour is made to post him to a colony, but this must necessarily depend on the demands for reinforcements and numbers of officers available With regard to the last part of the question, due consideration is given to service in theatres of war other than France and Italy

Medical Men on Sessional Engagements

Mr **ROBERT YOUNG** asked the Pensions Minister if he would state the number of pensioned retired regular naval and military medical men employed by the Ministry on a sessional basis besides those employed at a salary, how many sessions could be put in in a day, whether this was often the most lucrative method of payment for the aforesaid medical men, and whether, on account of the shortage of work, many demobilised civilian doctors were only getting three or four sessions per week which in many cases represented their whole income —Major **TRYON** replied: The number of retired regular officers employed by the Ministry on a sessional basis who are drawing pensions is 152, being 5 per cent of the total number of medical men so employed The maximum number of sessions is 11 per week, but owing to the number of medical men available for the work the average number of sessions per week which can be given to each man is considerably less

Dangerous Drugs Bill

Mr **SHORTT** (Home Secretary) introduced a Bill to regulate the importation, exportation, manufacture sale and use of opium and other dangerous drugs, which was read a first time

Medical News.

University of Cambridge.—At examinations for medical and surgical degrees held in Easter term the following candidates were successful:—

Part II., Pharmacology and General Pathology.—J. C. Ainsworth Davis, Christ's; L. W. Batten, Sidney Sussex; P. J. Briggs, Christ's; E. B. Brooke, Caius; A. W. Brown, Emmanuel; G. H. Caiger, Caius; M. T. Clegg, Jesus; J. R. A. Davies, Clare; J. G. Drew and G. E. Dyas, Caius; F. W. Furniss, Downing; H. J. H. Hendley, Caius; R. A. Highmoor, Clare; F. D. Howitt, Trinity; J. D. Legge Currie, Clare; W. B. A. Lewis, Christ's; G. S. Lund, St. John's; T. K. Maclachlan, Pembroke; F. H. Mather, Sidney Sussex; S. M. Milner, King's; O. G. Misquith, Christ's; R. W. Nichol, Caius; C. C. Okell, St. John's; C. P. Oliver, Caius; P. Richardson, Christ's; F. W. Roques, Clare; D. G. Sharp, Christ's; T. H. Sims, Pembroke; L. V. Snowman, Downing; C. G. Taylor, non-collegiate; R. H. White, King's; L. C. Whitworth, Downing; and R. N. P. Wilson, Pembroke.

Royal College of Physicians of London.—An ordinary Comitia of the Royal College of Physicians of London was held on April 29th, the President, Sir Norman Moore, being in the chair.—The President announced the appointment of Professor C. S. Sherrington as the representative of the College on the committee being formed to consider a memorial to the late Professor Sir William Osler. —The following were admitted to the *Membership* after having passed the required examinations: Dr. R. A. Bennett, Dr. F. B. Chavasse, Dr. T. F. Cotton, Dr. J. A. Drake, Dr. A. W. M. Ellis, Dr. F. R. Fraser, Dr. J. Gatt, Dr. Mary E. Harding, Dr. H. W. Hills, Dr. G. J. Langley, Dr. E. L. W. Mandel, Dr. E. Mapother, Dr. H. B. Russell, Dr. Evelyn D. Scott, Dr. H. S. Stannus, Dr. Margaret G. Thackrah, and Dr. R. H. Wilshaw Licences to practise physic were granted to 70 candidates who had passed the necessary examinations and conformed to the by-laws and regulations.—The following were elected to the *Fellowship* on the nomination of the Council: Dr. W. F. Menzies, Dr. J. G. Forbes, Dr. W. M. Robson, Dr. S. E. Dore, Dr. G. B. Price, Dr. E. L. Holland, Dr. A. Ramsbottom, Dr. A. S. Woodwark, Dr. F. G. Crookshank, Dr. A. C. D. Firth, Dr. N. Mutch, Dr. F. M. R. Walshe, Dr. G. Graham, and Dr. G. E. Beaumont.—The resignation of his membership by Dr. J. W. Springthorpe was accepted.—Dr. John Fawcett and Sir Wilmot Herringham were appointed as representatives of the College on the Senate of the University of London in place of Dr. Sidney Martin and Sir Seymour Sharkey, resigned.

Royal Colleges of Physicians of London and Surgeons of England.—At the Final Examination of the Conjoint Board, held from April 6th to 22nd, the following candidates were approved in the undermentioned subjects:—

Medicine.—A. N. Aitken, Rush Med. Coll.; Kathleen Ardell, Royal Free; M. Bharatan, Madras; S. Blackman, London; J. H. Blair, Queen's Univ.; A. B. Bratton, Cambridge and London; C. H. Bulcock, St. Bart.'s; Joan Katherine Somerville Cave, Royal Free; G. W. Cheater, Charing Cross; H. R. Chibber, Liverpool; Florence Edith Coombes, Royal Free; P. Couacoud, Guy's; F. C. Cozens, Cambridge and St. Bart.'s; F. W. Crook, Guy's; H. A. Crowther, Cambridge and Guy's; K. V. Deakin, Manchester; M. A. Distaso, Bristol and Cardiff; W. D. Doherty, Cambridge and Guy's; T. A. J. Duff, Toronto; Georgiana May Duthie, Manchester; J. H. France, Westminster; Blanche Sutton Gardner, Royal Free; A. G. D. Gavin, Cambridge and St. Thomas's; A. D. Gill, Birmingham; C. I. C. Gill, Cambridge and Guy's; G. E. Hayward, Manchester; F. Heber, London; Florence Janetta Humphreys, Westminster; Ruby Inkster, Univ. Coll.; H. V. Jackson, Bristol; Doris Eleanor Parker Jolly, King's Coll.; S. G. Jones and T. M. Jones, Liverpool; T. T. Jones, Manchester; Dorothy Maud Kemp, Royal Free; Doris Gertrude Knowles, St. George's; J. N. Laing, Manchester and St. Bart.'s; A. Leigh, Manchester; Mary Alice McHugh, Liverpool; L. B. Maxwell, St. Thomas's; G. S. Mitchell, Westminster; Annie Agnes Muir, Liverpool; B. Nanavati, Bombay and London; M. Nurick, London; Marjorie Pierce, Royal Free; Mary Colegrave Prideaux, St. Mary's; M. H. Renall, St. Bart.'s; Edith Mary Seward, Liverpool; J. V. Sparks, Cambridge and St. Bart.'s; P. Steinberg, London; C. J. Thomas, St. Thomas's; F. A. van Coller, Manchester; Nellie Wall, Liverpool; Helena Jane Webster, Westminster; A. D. Whitelaw, St. Thomas's; Dorothea Compston Wigfield, Royal Free; and F. B. Yonge, Middlesex.

Midwifery.—A. H. Abdel-Messih and N. Abdoh, Manchester; A. N. Aitkin, Rush Med. Coll.; F. Allen, Cambridge and St. Bart.'s; S. E. Amos, St. Thomas's; H. N. Andrews, St. Bart.'s; D. E. Bedford, Middlesex; Margaret Gladys Best, St. Mary's; G. C. Bhatia, Liverpool; S. Blackman, London; I. Blain, Manchester; J. L. M. Brown, St. Bart.'s; L. C. F. Chevens, St. Thomas's; G. H. A. P. Clavier, London; Florence Edith Coombes, Royal Free; G. R. H. Cooper, Birmingham; C. L. Cottle, Glasgow; J. W. Crawshaw, Manchester; E. J. Crisp, Guy's; C. K. Cullen, London; G. L. J. A. de Rynck, Univ. Coll.; I. G. de Zilva, Madras; R. F. Divecha, London; W. D. Doherty, Cambridge and Guy's; A. C. d'Souza, Manchester; A. Duffy, Manchester; F. H. Edwards, Liverpool; W. C. Elson, Leeds; S. Farris and J. Flanagan, Liverpool; E. C. H. Foreman, Univ. Coll.; Ada Marion Freeman, King's Coll.; O. P. Gallegos, Charing Cross; Blanche Sutton Gardner, Royal Free; Evelyn Alice Garnett, Manchester; Madeline Giles, St. Mary's; A. D. Gill, Birmingham; C. I. C. Gill, Cambridge and Guy's; B. Gould, London; F. R. Hall, St. Thomas's; H. W. Hammond, St. Bart.'s; Gertrude Eleanor Harre, St. Mary's; S. E. Harvey, St. Thomas's; S. S. Hewitt, St. Mary's; Sylvia Kema Hickson, Manchester; J. T. S. Hoey, Oxford and St. Thomas's; H. V. Jackson, Bristol; Marjorie Mary Jefferson, Manchester; T. M. Jones, Liverpool; M. H. K. Kane, Univ. Coll.; Dorothy Maud Kemp, Royal Free; A. N. Kingsbury, Middlesex; Margaret Hypatia Kingsford, London; G. Kinneir, St. Bart.'s; F. Knoyle, Middlesex; C. A. Lindup, Univ. Coll.; E. T. Lloyd, Guy's; J. R. Lund, St. Thomas's; Mary Alice McHugh, Liverpool; H. McKenzie, London; F. S. Maclean, Middlesex; C. L. Mason, St. Mary's; P. S. Menon, Edinburgh; B. Nanavati, Bombay and London; Sybil Mary Nuttall, St. Mary's; W. A. O'Connor, Oxford and Birmingham; D. J. P. O'Meara, Guy's; T. D. Overend, Oxford and Univ. Coll.; R. Y. Paton; Cambridge and St. Mary's; A. S. Pearson, Birmingham; Ruth Wade Plimsoll, Royal Free and St. Mary's; A. D. Porter, King's Coll.; M. R. Rana, Bombay; O. A. L. Roberts, St. Mary's; L. C. Rogers, Middlesex; G. R. A. de M. Rudolf, King's Coll.; A. Salgar, Paris; W. F. Skaife, St. Bart.'s; Constance Snowdon, Manchester; F. V. Squires, St. Thomas's; H. E. Suter, St. Mary's; K. H. Tallerman, Cambridge and St. Thomas's; Doris Adeline Taylor, Manchester; L. J. Timings, Birmingham; H. Tomlinson, Manchester; H. M. Toop, London; Edith Helen Trimmer, St. George's; F. I. G. Tweedie, Cambridge and St. Thomas's; J. F. Weakley, Univ. Coll.; C. H. Whittle, Cambridge and King's Coll.; E. A. Widdowson, Otago; Dorothea Compston Wigfield, Royal Free; and Greta Isabel Yeoman, St. Mary's.

Surgery.—J. H. Blair, Queen's Univ.; B. L. Collins, St. George's and King's Coll.; J. W. Crawshaw, Manchester; Georgiana May Duthie, Manchester and King's Coll.; W. C. Elson, Leeds; J. Flanagan, Liverpool; M. Garfield, Univ. Coll.; F. R. Hall, St. Thomas's; Doris G. Knowles, St. George's; F. S. Maclean, Cambridge and Middlesex; R. A. Madgwick, London; Dorah Mason, Royal Free and St. Mary's; C. W. Narbeth, St. Bart.'s; D. J. P. O'Meara, Guy's; C. L. Pasricha, Cambridge and St. Bart.'s; R. Y. Paton, Cambridge and St. Mary's; J. J. Redelinghuys, Univ. Coll.; H. L. Sackett, St. Bart.'s; A. D. Stoute, Boston and Westminster; C. J. A. Tjon-A-Man, Middlesex; H. Tomlinson, Manchester; F. A. van Coller, Manchester; N. S. B. Vintner, St. Bart.'s; and W. C. S. Wood, King's Coll.

London School of Tropical Medicine.—The following candidates passed the examination held at the termination of the sixty-second session (February-April, 1920):—

*H. E. Whittingham (Duncan Medal), *A. K. Cosgrave, *A. Khalik, *E. J. Wood, *E. Forrester-Paton, J. Fanstone, E. G. Mack, W. P. Hogg, J. S. Armstrong, J. R. C. Stephens, M. Wong, G. A. S. Madgwick, G. A. Frendo, C. Basile, M. Jackson, E. U. MacWilliam, N. Nedergaard, H. R. Dive, J. S. Crollus, J. Gray, A. Y. Cantin, D. Sohokman, and C. H. Brangwin.

* With distinction.

Royal College of Physicians of Edinburgh.—The George Alexander Gibson Memorial lecture will be delivered in two parts in the hall of the College on May 10th and 12th, at 5 P.M. each day, by Dr. William Russell. The subject chosen is the Sphygmomanometer in Practical Medicine. The first lecture will deal with the problem and the second with illustrations and interpretations.

University of London: University College.—A public lecture on Greek Science and Modern Science: A Comparison and a Contrast, will be delivered at 5.30 P.M. on May 12th by Dr. Charles Singer, Sir Robert Hadfield in the chair.

The University of Oxford has received an offer from Mr. Edward Whitley of £10,000 towards the endowment of a Professorship of Biochemistry, and a donation of £5000 from the British Dyestuffs Corporation, Ltd., towards the cost of extending the organic chemical laboratory.

University of Birmingham.—A course of post-graduate instruction is being given in the Medical Faculty, Edmund-street, and at the associated hospitals, beginning July 5th to 17th. The course will comprise sections of medicine, surgery, pathology and bacteriology, obstetrics and gynæcology, diseases of children, ophthalmology, diseases of ear and throat, radiology, electrical treatment, anatomy, and physiology. The fee for admission to the lectures and clinical demonstrations in each section is 1 guinea. Further particulars from the clerk to the Clinical Board, University, Edmund-street, Birmingham.

University of Manchester Appeal.—Another novel proposal in connexion with this appeal has been launched by the council of the University, who have decided that for every £5000 subscribed a free studentship shall be created, so that every private donor, town, district, or trade union subscribing this amount shall have the right to nominate a free scholar at the University. The importance of the step is that the new Education Act provides for the education of every boy and girl in the country up to matriculation standard, and if this decision of the University of Manchester is carried to its logical conclusion the endowment of free university education is accomplished and an undoubted step taken towards the democratisation of the University.

INDIAN MEDICAL SERVICE DINNER —The annual dinner of the Indian Medical Service will be held at the Trocadero on Tuesday, June 8th, at 7 45 P M , Major General G T A Harris, C S I , in the chair Tickets and all particulars may be obtained from the joint honorary secretary, Colonel J J Pratt, I M S (retd), 63, Addison road, London, W 14

MEDICAL SOCIETY OF LONDON —The Annual Oration will be given at 11, Chandos street Cavendish square, London, W , *on Monday May 10th* at 9 P M , by Lieutenant Colonel Sir D'Arcy Power, on the Rev John Ward and Medicine The President, Mr V Warren Low, will hold a reception at 8 30 P M , and during the evening will present the Fothergillian gold medal to Sir Leonard Rogers

ST THOMAS'S HOSPITAL POST GRADUATE INSTRUCTION IN VENEREAL DISEASES —A course of instruction in venereal diseases is being given on Thursdays at 3 P M , commencing May 20th, and lasting for 12 weeks Colonel L W Harrison will lecture on the Principles of Diagnosis and Treatment, and practical instruction will include the examination of patients, *microscopical* work, and the administration of anti syphilitic remedies, on a specified day in each week to be arranged Further particulars from the Medical Secretary, St Thomas s Hospital, London, S E 1

SMALL POX IN LONDON —Some of the small pox cases which have occurred in and around London during the past few weeks having remained undiscovered for a considerable time after the onset, the London County Council calls attention to the arrangements under which in doubtful cases the certifying practitioner confers with the medical officer of health of his borough Should a further opinion be required on application to the Public Health Department, at 2, Savoy hill, London, W C 2 (Tel No Gerrard 3641), the services of Dr W McC Wanklyn will be available

WEST LONDON MEDICO CHIRURGICAL SOCIETY DINNER —At a dinner of the West London Medico Chirurgical Society, held in the Wharncliffe Rooms on April 29th, the society's triennial gold medal was presented to Mr G E Gask, the other proposed recipient, Dr T R Elliott, being unavoidably absent Mr Herbert Chambers, the President, was in the chair, and a distinguished gathering included Dr Phineas Abraham, the founder of the medal The toast of "The Imperial Forces," coupled with the names of Sir Robert Hill and Sir John Goodwin, was proposed by Sir Robert Armstrong-Jones Summing up the benefits to laymen from the medical research and practice of the war, he spoke of the advance in the surgery of the brain, pleural cavity, fractures of the thigh and face, and of the importance of the Carrel Dakin methods , he alluded also to the treatment without certification of nervous and mental diseases and psycho neuroses All this work had been made possible by the helpful cooperation of the administrative heads of the medical departments In their replies both Directors General spoke with appreciation of the services of the civil profession in the war and of the important work done at the West London Hospital post graduate courses, Sir John Goodwin testifying to the great help which he had himself received there The toast of "The West London Medico Chirurgical Society " was proposed by Sir William Hale White, who in an interesting reminiscent speech recalled the work of eminent medical men connected with the society, including Sir William Jenner, Sir James Paget, and Sir William Osler In reply, Mr Herbert Chambers referred to the labours of the late Charles Keetley in founding the society This was the fourth occasion, he said on which the triennial medals founded for special heroism in the field or distinguished services to medical science had been given The selection committee, with the coöperation of Sir Humphry Rolleston and Sir Anthony Bowlby, had decided to give the medal this year for some achievement arising out of the war in the cause of medical science A remarkable advance in the surgery of gunshot wounds of the thorax due to the pioneer work of Dr Elliott, had enabled Mr Gask, who was the first member of the society to receive the medal, to perform a brilliant operation Mr Gask thanked the donors for the honour conferred upon him, but deprecated praise accorded to Dr Elliott and himself to the exclusion of others The work was the outcome of the labours of a variety of men in the British as well as in the French army, and was dependent also on the harmonious coöperation between physicians and surgeons Particularly credit was due to Dr K D Wilkinson, as well as to the help given by the administrative departments The toast of "Kindred Societies and Guests" was proposed by the Mayor of Kensington (Dr A J Rice-Oxley), Mr V Warren Low (President of the Medical Society of London) and Dr Leonard Williams responding, and a pleasant evening was brought to a close by a vote of thanks to the chairman proposed by Sir D'Arcy Power

ABERDEEN UNIVERSITY CLUB —The half yearly dinner is to be held at the Criterion Restaurant on Thursday, May 20th, at 7 30 P M , preceded by the annual general meeting (6 30 P M) All communications should be addressed to Dr W A Milligan, 11, Upper Brook street, W 1, who will be pleased to receive names of intending members

THE Congrès Français d Oto Rhino Laryngologie will be held in Paris next week from May 10th to 13th, and a large number of British specialists are going to the meeting For the meeting of *the Royal Institute of Public Health in* Brussels the hotels are already largely engaged from May 20th to 24th

PHYSIOLOGICAL CONGRESS AT PARIS —This Congress which met at Groningen in the year before the war had fixed on Paris as the place for its next meeting and had nominated *Professor* Charles Richet *Professor of Physiology* in the University of Paris as its president Not till this year, however, has it been possible for a meeting to be held and it will take place from July 16th to 20th at Paris Professor E Gley (Sorbonne 1, Rue Victor Cousin) is the secretary , the subscription has been fixed at 35 francs and a list of hotels available for members has been issued, the prices of a *lit* varying from 6-9 to 20-30 francs

NATIONAL COUNCIL FOR COMBATING VENEREAL DISEASES —Lord Sydenham *having notified the Executive* Committee of the Council that he would soon have to tender his resignation, Lord Gorrell has been nominated as his successor, while as a mark of recognition of Lord Sydenham s services it is proposed to entertain him at a farewell dinner

VENEREAL PREVENTION IN PORTSMOUTH —The Borough Council has adopted the recommendation of its Health and Housing Committee to take steps to spread among the male population of the borough a knowledge of the means of self *disinfection* as *indicated* in Dr A. Mearns Fraser's report Before the sitting was held at which this *decision* was taken a *representative gathering* of many interests met at the mayor's invitation to hear Dr Fraser expound his scheme In the ensuing discussion the consensus of opinion appeared in favour of the municipality popularising the means of self disinfection, although no formal vote was taken At the same time a number of voluntary agencies agreed to take the opportunity of a simultaneous ' chastity campaign "

THE UNIVERSITY COLSTON SOCIETY, BRISTOL —The society's annual dinner will be held shortly, when the guest of the evening will be Lord Moulton Alderman Frank Sheppard has accepted the office of President for 1921 The Bishop of Bristol, who is this year s President of the Colston Society, has issued an appeal for funds for research No collection has been made since 1917 when only £275 was raised, and it is hoped that the Bishop s appeal will bring in a far larger collection than has ever been amassed before

THE LATE DR W K FYFFE, OF WELLINGTON, N Z —William Kington Fyffe B A M B Camb , M R C P Lond who died on April 23rd at Wellington after an operation, was eldest son of the late Deputy Surgeon General W J Fyffe He studied at Cambridge and St George s Hospital, London where he became house physician and medical registrar and he was for a time assistant *physician* and pathologist to the Victoria Park Chest Hospital During the war he served as medical officer with the 4th New Zealand contingent at Gallipoli

A MEDICAL AID SOCIETY IN SOUTH WALES —The employees of the Windsor Colliery at Abertridwr desire to alter the present arrangements for colliery medical service They desire to become a registered society for providing medical aid The proposed society would engage whole-time doctors to provide medical attendance *It would also* embrace in its scope of activities the providing of drugs hospital and nursing benefits, expert treatment by specialists when needed *special nourishment* optical and dental treatment, artificial limbs and surgical appliances and spectacles at cost price Three medical officers are now asked for, a chief officer to live at Abertridwr and to receive £1000 per annum, with, in addition a house, coal, light and expenses in connexion with his duties such as a motor conveyance , a *second* to live at Caerphilly and receive £800 with extras as above, and a third at Senghenydd at a salary of £700 with the same extras Medical attendance on the families of the workers appears to be required as well as on the miners, of whom there are rather less than 2000 at this colliery , and since each worker would have on the average three dependents the total population to be served by the three medical officers would be about 8000 The society is to be managed by a committee of nine underground workers five surface workers and three officials No suggestion appears that any profit would be made by the society or that the services of the medical officers would in any way be exploited for gain but professional difficulties may be anticipated in regard to working the scheme

ROYAL MEDICAL BENEVOLENT FUND.—At the last meeting of the Committee, held on Tuesday, April 13th, 27 cases were considered, and £374 9*s.* voted to 24 of the applicants. The following is a summary of some of the cases relieved:—

Widow, aged 34, of M.B. Edin. who practised in N. Nigeria and with the Booth Line and died in December, 1919. Was left entirely unprovided for, her only income being £30 from investments, and she has a child, aged 4 months, which at present she cannot leave to earn her own living. Pays £2 2*s.* a week for board and lodging. Voted £18 in two instalments.—Widow, aged 38, of M.R.C.S. Eng. who practised at Newcastle, Staffs., and died in February, 1920. Was left with four children, ages 4 to 1 year, and has no income whatever. At present the guardians are allowing her to live in the resident medical officer's house, where she lived previously. Voted £18 in two instalments.—Widow, aged 43, of L.S.A. Lond. who practised at Bolton-on-Dearne, and died in October, 1919. Only income £70 from investments. Has four children, the eldest girl, aged 16, training as a shorthand typist; the younger children at school. Cannot manage owing to the high cost of living. Voted £18 in 12 instalments, and a special grant of £10.—Daughter, aged 60, of M.R.C.S. Eng. who practised at Battle, Sussex, and died in 1873. She has no income, and lives with her sister, who lets rooms when possible. Suffers from chronic rheumatism. Relieved 35 times, £290. Voted £18 in 12 instalments.—Daughter, aged 58, of M.R.C.S. Eng. who practised at Newport, Mon., and died in 1892. Was left totally unprovided for, and her only income is £21 from another charity. Pays 7*s.* 6*d.* a week rent. Suffers from ill-health. Cannot manage owing to the high cost of living. Relieved nine times, £117. Voted £18 in 12 instalments.—Widow, aged 36, of M.R.C.S. Eng. who practised at Witney and died in 1918. She receives £300 from investments, but she pays £75 in rent. She has three children, ages 12, 10, and 9, all at school, and she requires clothes for the children. Relieved twice, £10. Voted £2, and the case referred to the Guild.—Widow, aged 58, of M.R.C.S. Eng. who practised in Devonshire and died in 1914. Was left entirely without means, with one daughter, now aged 26, who is a children's nurse. Applicant has been earning £30 a year as a housekeeper, but is now ill and out of employment. Staying with friends. Relieved seven times, £64. Voted £18 in 12 instalments.—M.R.C.S. Eng., aged 83, widower, who practised at Hastings. Only income a pension of £100. Suffers from ill-health. Has one daughter, who looks after applicant. Rent and rates £39, part of which is paid by friends. Relieved once, £26. Voted £26 in 12 instalments.—Widow, aged 65, of M.B. Glag. who practised at Birkenhead and died in 1885. She receives £20 from another charity and £15 from a lodger. Does occasional needlework. Has three children who help all they can. Suffers from neuritis and heart trouble. Rent and rates £30. Cannot manage owing to the high cost of living. Relieved ten times, £120. Voted £12 in 12 instalments.—Daughter, aged 52, of M.R.C.S. Eng. who practised in Bombay and died in 1873. Has taken charge of a mental case for 14 years, for which she receives £1 a week. Rent and rates £16 a year. The high cost of living makes it impossible for her to manage. Relieved eight times, £93. Voted £18 in 12 instalments.

Subscriptions may be sent to the honorary treasurer, Sir Charters Symonds, at 11, Chandos-street, Cavendish-square, London, W.1.

LIVERPOOL MEDICAL INSTITUTION.—At a meeting of the Pathological Section of this society held on April 15th, Dr. J. F. Gemmell, the President, in the chair, Mr. F. C. Lewis read a note on the Standardisation of the Blood-cell Suspension in Complement-fixation Tests. He demonstrated his thesis in vitro, and laid emphasis on the fact that different workers used suspensions of different strengths; and further, that the method generally adopted for making the suspension led to irregularities in the strength. It was suggested that variations in the result of Wassermann tests applied to the same serum could, other factors being equal, be explained on the assumption of a variable minimum hæmolytic dose of complement. A plea was made for the use of a uniform and gravimetric suspension in order to ensure that the term "minimum hæmolytic dose of complement" was common to all laboratories.—Mr. John T. Morrison contributed a short paper on Diseases of the Male Breast, with Special Reference to Chronic Mastitis. The general similarity to diseases of the female breast was pointed out and a brief description given of the malformations, acute inflammations, granulomata and neoplasms affecting the gland. The condition, unsatisfactorily termed "gynecomastia," was discussed in detail. Histological reports were very few in number, but none confirmed the suggestion that the condition was a true hypertrophy of mammary tissue. On the other hand, there was evidence that a slow, quiet inflammatory process was at work in most instances. In cases of frankly chronic inflammation, the breast, or a nodule within it, could be felt as a firm well-defined tender mass; axillary adenitis might be present, but suppuration was rare. Histologically there was an increased formation of fibrous tissue with sometimes, in addition, an increase in the number of ducts; inflammatory reaction was noted at this latter site. It was recommended that cases which did not react to rest and the application of heat should be excised and examined microscopically. The suggestion was made that the lactiferous ducts, or their accompanying lymphatics, were the path of entry of the causal factor. The paper was freely illustrated by lantern slides.

PROPOSED MEDICAL INSTITUTE IN NEWCASTLE.—The establishment of a medical institute and club for the North of England has been advanced a further stage. Of the £10,000 required for the purchase and equipment of a suitable building, £5000 was already promised by Dr. J. W. Smith, of Ryton, in memory of his son (see THE LANCET, 1919, i., 1098). The building is to include a library and rooms for meetings, a restaurant, billiard, smoking, and card rooms, and a few bedrooms for members are to be provided. The combination of the conveniences of a club with facilities for obtaining technical literature in a meeting place for doctors should prove popular, and the appeal of the committee for promises of membership for a period of five years at £2 2*s.* a year should receive a wide response. Medical men of the North of England are asked also to subscribe £10 each towards the initial expenses. The secretary of the committee is Dr. J. Don, 1, Grove-street, Newcastle-on-Tyne.

NATIONAL BABY WEEK COUNCIL.—The Council has issued a leaflet (No. 8) entitled "Notes for Speakers on Child Welfare, 1920," which should prove useful to those for whom it is intended. The leaflet includes notes on child mortality, on the requirements of healthy babyhood, widows' pensions, and on a few of the ways in which the ordinary lay citizen can promote the aims of the Council. The provision of reliable statistics in simple form will enable many busy speakers to be more concrete and definite in their statements without fear of inaccuracy, and should thus add greatly to the effect of their appeals.

A meeting of the Council will be held at Armitage Hall, 224, Great Portland-street, London, W., on Tuesday next, May 11th, at 3 P.M., Viscount Astor in the chair, when Dr. Eric Pritchard will present the executive committee's report and scheme for this year's campaign, and Dr. Helen Swatman will give an address on the Development of Infant Welfare and Antenatal Work in Rural Districts, to be followed by a discussion. Mrs. H. A. L. Fisher will speak on the Problem of the Unmarried Mother and her Child, and Mr. T. Vivian Rees on the Children's Era. The meeting will be open to non-members of the Council by ticket, which may be obtained free on application to the secretary at 27A, Cavendish-square, London, W.1.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.

THURSDAY, May 13th.—4 P.M., Demonstration:—Dr. A. D. Waller: The Apparent "Growth" of Plants (and of Inanimate Materials) and of their Apparent "Contractility."—Paper:—Mr. W. N. F. Woodland: On the "Renal Portal" System (Renal Venous Meshwork) and Kidney Excretion in Vertebrata (communicated by Prof. A. Keith).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, May 10th.

WAR (Hon. Secretaries—H. B. Hill, Oliver Robinson, J. McIntyre): at 5.30 P.M.

Annual General Meeting—Election of Officers and Council for 1920–1921.

Paper:

Surgeon-Captain Bassett-Smith, R.N.: Scurvy, with Special Reference to Prophylaxis in the Royal Navy.

Wednesday, May 12th.

SURGERY: SUB-SECTION OF PROCTOLOGY (Hon. Secretaries—W. Sampson Handley, Sir Gordon Watson): at 5.30 P.M.

Annual General Meeting—Election of Officers and Council for 1920–1921.

Thursday, May 13th.

NEUROLOGY (Hon. Secretaries—P. W. Saunders, George Riddoch): at 8.30 P.M.

Annual General Meeting—Election of Officers and Council for 1920–1921.

Paper:

Dr. S. A. Kinnier Wilson: On Decerebrate Rigidity in Man, and the Occurrence of Tonic Fits.

Friday, May 14th.

CLINICAL (Hon. Secretaries—T. P. Legg, S. A. K. Wilson): at 5.30 P.M.

Annual General Meeting—Election of Officers and Council for 1920–1921. *Cases* (at 5 P.M.).

Will members wishing to show cases kindly inform the Hon. Secretaries as soon as possible?

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY, May 10th.—8 P.M., Annual Meeting. Election of Officers for 1920–21 Session. 9 P.M.: Annual Oration: Sir D'Arcy Power: The Rev. John Ward and Medicine. During the evening the Fothergillian Medal (1917) will be presented to Sir Leonard Rogers, M.D.

TUBERCULOSIS SOCIETY, at the Town Hall, Leeds.

THURSDAY, May 13th, AND FRIDAY.—Two-day Congress. There will be Sections dealing with—1. Tuberculosis and Child Life. 2. Tuberculosis Workshops and Workers. 3. Recent Advances in Treatment. 4. Farm Colony Work. 5. Sanatorium Dietary. 6. Care and After-Care. 7. Tuberculosis and the Housing Problem 8 Tuberculosis and the War 9 Tuberculosis and the Training of the General Practitioner 10 Artificial Pneumothorax

SOCIETY OF TROPICAL MEDICINE AND HYGIENE 11, Chandos street, Cavendish square, W

FRIDAY, May 14th —8 30 P M, Paper —Dr E J Wood A Consideration of Pellagra from the Standpoint of a "Deficiency Disease

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH, in the Hall of the College 9 Queen street, Edinburgh

MONDAY, May 10th, AND WEDNESDAY —5 P M, George Alexander Gibson Memorial Lecture —Dr W Russell The Sphygmomanometer in Practical Medicine Lecture I, The Problem Lecture II, Illustrations and Interpretations

WEST LONDON POST GRADUATE COLLEGE, West London Hospital, Hammersmith W

MONDAY, May 10th —12 15 P M, Dr Burnford Pathological Demonstration 5 P M, Mr D Armour Cervical Ribs

TUESDAY —10 A M, Dr McDougal Electrical Department 5 P M, Mr T Grey Appendicitis

WEDNESDAY —2 P M, Mr Gibb Eye Department 5 P M, Dr Owen Congenital Morbus Cordis

THURSDAY —10 30 A M, Dr Simson Gynæcological Demonstration 5 P M, Mr B Harman Cataract Operations

FRIDAY —2 P M, Dr Pritchard Visit to Medical Wards 5 P M, Sir R Armstrong-Jones Mental Disease

SATURDAY —10 A M, Dr A Saunders Medical Diseases of Children 12 noon Mr Sinclair Surgical Anatomy of the Abdomen

Daily —10 A M, Ward Visits 2 P M, In patient and Out patient Clinics and Operations

NORTH EAST LONDON POST GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N

MONDAY, May 10th —2 30 P M Mr J B Banister Gynæcological

TUESDAY —9 45 A M, Lieut Col R H Elliot Selected Eye Cases and Operations 2 15 P M, Dr A J Whiting Selected Cases of Heart Disease 3 15 P M, Mr H Evans Scrotal Tumours 4 30 P M, Lecture —Mr H W Carson Surgical Diseases of the Pancreas

WEDNESDAY —2 30 P M, Dr W J Oliver Dermatological

THURSDAY —2 30 P M, Mr N Fleming Eye Cases Dr J Metcalfe Radiology

FRIDAY —2 30 P M, Dr C G Sundell Diseases of Children

SATURDAY —3 P M, Mr Carson Selected Surgical Cases

Daily —2 30 P M, Operations Medical and Surgical Clinics, &c

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON)

A Course of Post Graduate Lectures on Syphilis is being given by various members of the staff of King's College Hospital during the present year

FRIDAY, May 14th —9 15 P M, Dr H W Wiltshire Syphilis in Medical Practice (Cardiovascular)

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S W

MONDAY, May 10th —2 P M, Dr Melville X Ray Department

TUESDAY —2 P M, Dr D Grant Throat Department 2 30 P M, Demonstration —Dr Punch *Cases Simulating Pulmonary* Tuberculosis

WEDNESDAY —10 30 A M, Dr Punch Demonstration of Museum Specimens 2 P M, Dr Gosse Cardiographic Department 2 30 P M, Demonstration —Dr Beaumont Cases Simulating Pulmonary Tuberculosis

THURSDAY —10 30 A M, Dr Burrell Artificial Pneumothorax 2 30 P M, Demonstration —Dr Burrell Cases Simulating Pulmonary Tuberculosis

FRIDAY —2 P M, Dr Melville X Ray Department 2 30 P M, Demonstration —Dr Jex Blake Cases Suitable for Sanatorium

SATURDAY —1 P M, Dr Batty Shaw Special Demonstration in the Out-patient Department

UNIVERSITY OF LONDON

Advanced Lectures in Physiology to Students of the University and others interested in the subject

A Course of Eight Lectures on Nutrition will be given at King's College for Women (Household and Social Science Department), Campden Hill road Kensington W

MONDAY, May 10th, AND TUESDAY —5 P M, Lectures III and IV —Dr E Mellanby

UNIVERSITY COLLEGE (UNIVERSITY OF LONDON) Gower street, W C

WEDNESDAY May 12th —5 30 P M, Public Lecture —Dr C Singer Greek Science and Modern Science a Comparison and a Contrast

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle street, Piccadilly, W

FRIDAY, May 14th —9 P M, Prof K Pearson Sidelights on the *Evolution of Man*

CHADWICK PUBLIC LECTURES Pathological Lecture Hall, The New Medical Schools, Cambridge

TUESDAY, *May 11th —5 P M, Dr F G Crookshank* Man and Disease—III, The Future —Bacteriology in Medicine and Epidemiology —Relation of Epidemiology to Sociology

UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE POST-GRADUATE LECTURES, at the Sheffield University, Pathological Museum

WEDNESDAY, May 12th —4 P M, Prof Connell Pathology of Everyday Lesions of the Intestine

MANCHESTER ROYAL INFIRMARY *POST* GRADUATE CLINIC

TUESDAY, May 11th —4 30 P M, Lecture —Dr D E Core Hysteria and Certain Indications for its Treatment

SALFORD ROYAL HOSPITAL AND ANCOATS HOSPITAL POST-GRADUATE DEMONSTRATIONS at the two Hospitals alternately

THURSDAY, May 13th —4.30 P M, Dr Dyson Tuberculosis of the Skin (At Salford Royal Hospital)

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column are invited to forward to THE LANCET *Office, directed to the Sub Editor, not later than 9 o'clock on the Thursday morning of each week such information for gratuitous publication*

BOURNE, G M B Lond, M R C P, has been appointed Physician to the East London Hospital for Children, Shadwell

DYSON, W, O B E, M D, Honorary Dermatologist to the Manchester Royal Infirmary

HERZFELD, GERTRUDE M A, M B, Ch B, Junior Surgeon to the Edinburgh Hospital for Women and Children

POLLARD, Sir G H, M D Edin, Clinical Assistant at St John's Hospital for Diseases of the Skin

VINING, C W M D, B S Lond, M R C P, D P H, Assistant Physician in Charge of Children's Department, General Infirmary, Leeds

Certifying Surgeons under the Factory and Workshop Acts **SPENCE, D L**, M R C S, L R C P Lond (Melksham) **STEELL J W G**, M R C S, L R C P (Youlgreave), **LLOYD, W A T**, L S A (Llandilo)

Vacancies.

For further information refer to the advertisement columns

Barnsley, Beckett Hospital —Jun H S £200

Battersea Borough Council —Asst M O H £700

Birkenhead Borough Hospital —Jun H S £200

Birmingham General Dispensary —Res M O £400

Bradford Children's Hospital —H S £180

Bradford City Education Committee —Asst School M O £600

Bury County Borough —Asst M O H, &c £600

Bury St Edmund's, West Suffolk General Hospital —Res H S £175

Buxton, Derbyshire Devonshire Hospital for Rheumatism and Allied Diseases —H P £250

Cancer Hospital Fulham road, S W —Three Anæsthetists

Canning Town Women's Settlement Hospital, Balaam-street, Plaistow, E —Hon Visiting S

Chester County Asylum —Third Asst M O £350

Colchester, Severalls Mental Hospital —Fourth Asst M O £510

Colchester, Royal Eastern Counties Institution for Idiots Imbeciles, and the Feeble-Minded —M O £300

Coventry Education Committee —Two Sch Dents £400

Cupar-Fife, Fife and Kinross Joint Sanatorium Board, Glenlomond Sanatorium —Asst Res M O £300

Derby County Borough —Asst Tuberc O £500

Derby, Derbyshire Royal Infirmary —Oph H S £200

Dr Barnardo's Homes, 18 26, Stepney Causeway E —Sen M O

Durham University —Asst in the Dept of Bacteriology £600

Freemasons Hospital and Nursing Home, 237, Fulham road, S W —Res M O £250

Galway, University College —Professorships of Anat and Phys

Great Northern Central Hospital, Holloway N —H S £150

Greenwich Union Infirmary, Vanbrugh hill, East Greenwich, S E —Asst Med Supt £300

Guildford, Royal Surrey County Hospital —Third H S £150

Halifax Royal Infirmary —H S £200

Hants Enham Village Centre for Disabled Ex Service Men, near Andover,—Asst Med Director £500

Hindley Urban District Council —M O H and School M O £850

Hull Royal Infirmary —Senr H S £200 Also Cas H S £150

Ilford Urban District Council —Dent S £500

Isle of Wight County Asylum —Asst M O £300

King's College Hospital, Denmark Hill S E —Bacteriologist

Kingston, Ont, Queen's University —Prof of Clin Surgery $5000 Prof of Path, Prof of Anat, and Prof of Pharm $3500 each Prof of Prev Med and Pub Health $3000 Asst Prof of Phys $2000

Leeds City —Asst M O for Maternity and Child Welfare £500

Leeds Public Dispensary —Res M O £200

Liverpool, Royal Southern Hospital —Cas O £150

Liverpool Stanley Hospital —H S's £150

London Lock Hospital Dean-street, Oxford street W, and 253 Harrow-road Paddington, W —Pathologist £500

Macclesfield Cheshire County Asylum Parkside —Asst M O £350

Maidstone Kent County Ophthalmic Hospital —H S £250

Manchester, Ancoats Hospital —Hon Con Oph S and Hon P

Manchester Children's Hospital, Gartside-street, Manchester —Asst M O £200

Manchester Hospital for Consumption and Diseases of the Throat and Chest, Bowdon Cheshire —Res M O £350

Manchester Royal Infirmary —Second H S to Special Departments £25 for first six months and £50 for second

Manchester, St Mary's Hospitals for Women and Children —Two H S s for Maternity Hospital £100

Middlesbrough, North Ormesby Hospital —Asst H S £200

Middlesbrough, North Riding Infirmary —Hon S

Middlesex County Council —Female Asst M O £500

Midlothian, Saughton Hall Private Asylum —Med Supt

Miller General Hospital for South East London, Greenwich road S E —Hon Asst Ophth S

Montrose Royal Asylum —Asst M O £300

Newcastle-upon Tyne, Hospital for Sick Children —Jun Res M O £200

Newcastle-upon Tyne Royal Victoria Infirmary —Anæsth Also Refractionist £100

Norfolk County —Tuberc O £600

Northampton General Hospital —H S £200

Norwich, Norfolk and Norwich Hospital —H P and Two H S s £200.

Nottingham General Hospital —Cas H S £200

Oldham Royal Infirmary —Third H S £200

Portsmouth Royal Hospital.—H.S. £150.
Preston and County of Lancaster Royal Infirmary.—H.S. £180.
Queen Charlotte's Lying-in Hospital, Marylebone-road, N.W.—Asst. Res. M.O. £50.
Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Hon. Anæsth. £25. Also H.S. £100.
Rochester, Kent, St. Bartholomew's Hospital.—Jun. Res. M.O. £150.
Rotherham Hospital.—Jun. H.S. £150.
Royal Chest Hospital, City-road, E.C.—M.O. in X Ray Dept. 25 gs. Also Clin. Assts. Also H.P. £120.
Royal Ear Hospital, Dean-street, Soho, W.—H.S.
Royal Free Hospital, Gray's Inn-road, W.C.—Sen. Res. M.O. £200. Also Cas. O. £100. Also Two H.S.'s. £50.
St. Mary's Hospital for Women and Children, Plaistow, London, E.—Res. M.O. £200.
St. Peter's Hospital for Stone, &c., Henrietta-street, Covent Garden, W.C.—Jun. H.S. £75.
Seamen's Hospital Society, Hospital for Tropical Diseases, Endsleigh-gardens, N.W.—H.P. £100.
Sheffield Royal Hospital.—Cas. O. and Asst. Cas. O. £150 each.
Sheffield Royal Infirmary.—H.P. and H.S. £150 each.
Sleaford, Kesteven County Asylum, near Sleaford, Lincolnshire.—Asst. M.O. £350.
outhampton County Borough.—Sch. Dent. £500.
South London Hospital for Women, South Side, Clapham Common, S.W.—Female Asst. Path.
Stamford, Rutland, and General Infirmary, Stamford.—H.S. £200.
Stockport Infirmary.—Jun. Res. M.O. £200.
Stroud General Hospital.—H.S. £200.
Surrey Dispensary, Southwark, S.E.—Res. M.O. £300.
Torquay Local Education Authority.—Asst. Sch. M.O. and Deputy M.O.H. £500.
Union of South Africa.—Asst. Health O. £900. Also Two Med. Inspectors, £850 each. Also Asst. Path. £750. Also Government Med. and Port Health O. £750.
University of London, St. Mary's Hospital Medical School.—Univ. Chair of Physiology. £900.
Warwickshire County Council.—Assistant County M.O.H. £500.
Weir Hospital, Grove-road, Balham, S.W.—Res. M.O. £150. Also Hon. Visiting P.'s and S.'s, Radio., and Anæsth.'s.
Wells Asylum, Somerset.—Sen. Asst. M.O. £450.
West Bromwich and District Hospital.—Res. H.S. £200.
West Ham Union.—Two Specialist Consultants. £150.
West London Hospital, Hammersmith, W.—H.P. and H.S. Also Surg. Dent. or Asst. Surg. Dent.
Western Dispensary, 38, Rochester-row, S.W.—Vacancy on Attending Med. Staff.
Whitehaven and West Cumberland Infirmary.—Res. H.S. £180.
Wigan Infirmary.—Senior H.S. £250.
Wolverhampton and Staffordshire General Hospital.—H.S. £200.
Worcester County and City Mental Hospital, Powick.—Jun. Asst. M.O. £300.
Worthing, West Sussex and Chichester Joint Education Committee.—Asst. Sch. M.O. £500.

The Home Secretary gives notice of a vacancy for a Specialist Medical Referee under the Workmen's Compensation Act, 1906, for Ophthalmic cases in County Court Circuit No. 6. Applications should reach the Private Secretary, Home Office, not later than May 26th, 1920.

The Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Ballindalloch, Cardenden, Ellesmere, and at Leicester (West).

Births, Marriages, and Deaths.

BIRTHS.

ALLEN.—On April 30th, at Upper Richmond-road, Putney, the wife of Captain W. B. Allen, V.C., D.S.O., M.C., R.A.M.C., of a daughter.

CARROLL.—On May 1st, at St. Petersburg-place, W., the wife of Charles Herbert Carroll, M.R.C.S., L.R.C.P., of a daughter.

COX.—On April 30th, at a nursing home, Manchester, the wife of George Lissant Cox, M.D. Cantab., of a daughter.

MCMULLAN.—On April 30th, the wife of George McMullan, M.D., F.R.C.S.E., Wallingford, Berks, of a son.

MAXWELL.—On April 26th, at St. Ann's, Kirkcaldy, N.B., the wife of James Maxwell, M.D., of a daughter.

RAINEY.—On May 2nd, at Wakefield House, Compton-street, Eastbourne, the wife of E. H. Rainey, F.R.C.S., of a daughter.

MARRIAGES.

GOODWIN—ADAMS.—On April 29th, at St. Jude's Church, Southsea, Surgeon Lieutenant-Commander Ernest St. George Sagar Goodwin, M.A., M.B., R.N., to Ida Dorothy, younger daughter of Engineer Captain W. H. Adams, R.N., and Mrs. Adams, of Craneswater-avenue, Southsea.

DEATHS.

SPENCER.—On April 7th, at Eastbourne, John Spencer, L.R.C.P. & L.R.C.S. Ed., L.F.P.S. Glasgow, of 347, High Road, Leyton, Essex, aged 60.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

A MATINEE in aid of the Nurses' Home Fund of the Great Northern Hospital, Holloway, will be held at the Palladium on Friday, May 14th, at 2.30 P.M. Her Majesty Queen Alexandra has expressed her hope of being present. Tickets may be obtained from the secretary of the hospital.

BOOKS, ETC., RECEIVED.

BELL, G., AND SONS, LTD., London.
The British System of Physical Education. A practical text-book for teachers. By Beatrice E. Bear, co-Principal of Queen Alexandra's House Physical Training College. With Foreword by Sir James Crichton-Browne, M.D., LL.D., F.R.S. Pp. 128. 8*s.* 6*d.*

BLACK, A. AND C., London.
Advice to Consumptives: Home Treatment, After-care, and Prevention. By Noel D. Bardswell, M.D. Foreword by the late Dr. C. Theodore Williams. Pp. 153. 3*s.* 6*d.*

HODDER AND STOUGHTON, London.
The New Children. Talks with Dr. Maria Montessori. By Sheila Radice. Pp. 170. 4*s.*

HOEBER, PAUL B., New York.
Education in War and Peace. By Stewart Paton, M.D. Pp. 116. $1.50.
Aphasia and Associated Speech Problems. By M. Osnato, M.D. Pp. 191. $2.50.
Rambling Recollections: An Autobiography. By A. D. Rockwell, M.D. Pp. 350. $4.00.

LIVRARIA ECONOMICA, Curityba, Paraná, Brazil.
A Prophylaxia Rural no Estado do Paraná. Esboço de geographia medica. By Dr. H. C. de S. Araujo. Pp. 335.

MODERN PRINTING COMPANY, Melbourne.
Lectures to Students on Diphtheria, Measles, Scarlatina. By F. V. G. Scholes, M.D., D.P.H. Pp. 236.

SAUNDERS, W. B., COMPANY, LTD., London and Philadelphia.
A Manual of Obstetrics. By John Cooke Hirst, M.D., Obstetrician and Gynæcologist to the Philadelphia General Hospital. Pp. 516. 14*s.*

URBAN AND SCHWARZENBERG, Berlin and Vienna.
Aus 25 Jahren Orthopädischer Arbeit Eine therapeutische Orientierung für praktischen Arzt. Von Prof. Dr. O. Vulpius. Pp. 80. M. 12.

WRIGHT, JOHN, AND SONS, Bristol.
Electric Ionization: A Practical Introduction to Its Use in Surgery. By A. R. Friel, M.D., F.R.C.S.I. Pp. 78. 8*s.*

Communications, Letters, &c., to the Editor have been received from—

A.—*Answers*, Lond., Editor of; Dr. W. Allingham, Orsett; Messrs. Allen and Hanburys, Lond.

B.—Dr. E. Bramwell, Edinburgh; Mrs. A. Barnes, Liverpool; British Commercial Gas Association, Lond.; Messrs. Baillière, Tindall, and Cox, Lond.; Prof. W. B. Bell, Malvern; Dr. C. L. Browne, South Mimms; Mr. H. A. Barker, Lond.; Dr. W. H. Broad, Liverpool; Dr. J. W. Bride, Manchester; Dr. C. F. Bailey, Brighton; Dr. C. Banks, Stafford; Board of Education, Lond.; British Colloids, Lond.; British Italian Commercial Association, Lond.

C.—Clerical, Medical, and General Life Assurance Society, Lond.; Council of British Ophthalmology, Lond., Hon. Sec. of; China Continuation Committee, Shanghai; Mr. F. R. Cave, Bath; Dr. E. F. Cyriax, Lond.; Prof. E. L. Collis, Cardiff; Dr. A. Chaplin, Lond.; Dr. D. E. Core, Manchester; Chicago School of Sanitary Instruction; Dr. C. W. Chapman, Lond.; Dr. C. Coombs, Bristol.

D.—Dr. T. B. Davies, Lond.; Dr. D. Dougal, Manchester; Dept. of Scientific and Industrial Research, Lond.; Dr. H. H. Dale, Lond.

E.—Dr. G. S. Earl, Plymouth; Dr. J. I. Enright, Liverpool; Major-Gen. Sir George Evatt, Lond.; Dr. A. R. Elliott, Lond.

F.—Friends' Emergency War Victims Relief Committee, Lond.; Food Reform Society, Lond., Hon. Sec. of; Major H. French, Lond.; Major E. G. Ffrench, Lond.

G.—Mr. W. B. Gabriel, Lond.; *Glaxo Gazette*, Lond.; Great Northern Central Hospital, Lond.

H.—Dr. R. C. Holt, Didsbury; Mr. W. H. Hatcher, Swansea; Mr. C. A. Hoefftcke, Lond.

I.—Illuminating Engineering Society, Lond.

K.—King's College Hospital Medical School, Lond., Sec. of; Dr. W. H. Kesteven, Kingston; King Edward's Hospital Fund for London, Hon. Sec. of.

L.—Dr. C. E. Lakin, Lond.; Dr. J. Lipsey, Glasgow; Dr. G. Lambert, Reading; Messrs. Longmans, Green, and Co., Lond.; Dr. L. R. Lempriere, Hertford; London School of Tropical Medicine, Sec. of; Dr. A. de Llamas, Corrientes; London (Royal Free Hospital) School of Medicine for Women.

M.—Ministry of Health, Lond.; Mrs. M. McConnel, Petersfield; Medical Research Committee, Lond.; Dr. H. L. Murray, Lond.; Medical Society of London; Dr. Mitterstiller, Innsbruck; Dr. P. H. Manson-Bahr, Lond.; Dr. W. A. Milligan, Lond.; Dr. R. Morton, Lond.; Ministry of Pensions, Lond.

N.—Dr. J. A. Nixon, Clifton; National Health Week Council, Lond., Chairman of; National Health Society, Lond., Sec. of; National Baby Week Council, Lond.; Mr. R. J. Norris-Cane, Lond.

P.—People's League of Health, Lond.; Dr. J. Parkinson, Lond.; Sir A. Pearson, Lond.

R.—Mr. W. Rice, Lond.; Lieut.-Col. Sir Leonard Rogers, Lond.; Royal Mail Steam Packet Co., Lond.; Royal Society, Lond.; Royal Society of Arts, Lond.; Mr. J. E. H. Roberts, Lond.; Royal College of Physicians of London, President and Fellows of; Royal Institution of Great Britain, Lond.; Dr. A. S. Russell, Lond.

S.—Prof. W. Stirling, Manchester; Dr. D. P. Sutherland, Manchester; Society of Tropical Medicine and Hygiene, Lond.; Society for the Prevention of Venereal Disease, Lond.; Save the Children Fund, Lond.; Dr. A. G. Shera, Eastbourne; Dr. E. F. Skinner, Sheffield; School Dentists' Society Lond.; Société des Sciences Médicales de Montpellier; Scottish Board of Health, Edinburgh.

T.—Dr. A. H. Thompson, Lond.

U.—University of London.

W.—Dr. F. J. Waldo, Lond.; Miss J. Weir, Killybegs; Capt. E. J. Wyler, R.A.M.C.; West London Medico-Chirurgical Society; West London Hospital Post-Graduate College; Dr. F. J. Wethered, Falmouth; Sir G. S. Woodhead, Cambridge; Dr. L. Williams, Lond.

Y.—Dr. R. A. Young, Lond.

Notes, Short Comments, and Answers to Correspondents.

THE INDUSTRIAL SETTLEMENT FOR THE CONSUMPTIVE.

BY P. C. VARRIER JONES, M A. CANTAB, M R C S., L.R C.P. LOND.,
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THE earlier conception of colonies for tuberculous subjects was associated with little more than the prolongation of the period of treatment of the individual. The newer conception of the duties of *after care and colony* committees is based on *the inclusion* of the idea of partial if not complete separation or segregation of the tuberculous patient. The colony idea, then, at first at any rate, connoted no thought for the welfare of the community, it was concerned merely with assuring the benefit of the sick individual.

Communities for the tuberculous will not, however, be such artificial and involuntary segregated bodies as some people would have us believe. Indeed, the village settlement has a two fold justification. It not only offers employment to those who cannot be employed elsewhere, but it affords them relief from the economic pressure of the outside *world*. *Why do we healthy* subjects live and work in the *environment in which we* happen to find ourselves? Unless we are wealthy aristocrats we, all of us, have to work and live where we can earn our living, similarly it will be found that the consumptive will live and work where conditions are favourable for him. It must be clearly understood, however, that the founding of such a community is a problem not so simple as it sounds. Any fantastic idea of acquiring a large tract of land and sending consumptives to live there and fend for themselves as best they can is doomed to failure from the outset. It is only by the most gradual steps that such a *community* can be brought into being and developed.

An Industry for Consumptives

Here we open up *new ground* and *put forward* a *new* idea to which the individual and the national mind will turn and readjust itself. Just as the well to do seek special places and climates for the benefit of *their health*, so—we must get accustomed to the idea—those not so well endowed with worldly gear may with equal propriety seek some place best suited for the prolongation of their life under the most favourable conditions. The only difference *is one of "exchange" and economics*. *To provide the rich* patient with the wherewithal to give in exchange for the amenities of life others work or have worked, while the man ordinarily dependent on his own exertion, having no one to work for him, must himself continue to work. He also can exchange the results of labour—his own—into food and comforts for himself and his family, even if *he cannot* provide for them completely. The village community, or industrial settlement—whatever it is *called*—is *designed to* provide the opportunity for such exchange.

Since a village community cannot be called into being by a *stroke of the pen, it is necessary* to build it up gradually and quietly from the materials ready to hand. Towns and villages are generally called into being by the influx of inhabitants seeking food and work. An industry is started, it matters not what, a population immediately follows and congregates around it. The people are *there for the benefit* of the industry, not the industry *for the benefit of the* people. Why not, whilst following the usual plan as regards the first part of the process, reverse the second and, founding an industry, run it for the benefit of the people? Set up your industry and the people will flock to it, but in this instance let the industry be set up for consumptives, let it be run for their particular and special benefit, and they will come—and stay.

The Principle Involved

Such is the process a *perfectly* rational and feasible one of starting a community for consumptives. The starting of an institution is quite a different matter—the latter is artificial, the crowding together of *members of one sex*—relieving them of all sense of responsibility and of proportion. Men or women remaining for long under an institutional regime are left in conditions in which they lose interest in life and become dependent on others for moral support. A village community must not be a collection of almshouses, filled with pensioners spending their last years dependent on the charity of others. That is quite unnecessary, for these colonists or settlers are neither old nor infirm. Their strength is certainly diminished and their health impaired, but with encouragement and opportunity, both of which should be freely given, they will be able to contribute very materially to their own support and that of their families. The opportunity to work is what is required, and their earnings, together with a *small pension*, will *in most cases* enable them to become self supporting certainly to a much greater extent than were they compelled to enter into competition with the healthy worker in the outside world. All the artificial helps and make believes of an institution should be avoided. Full liberty of conscience and action must be given and also guidance and help in the art of becoming as fully self supporting as possible. The sapping of the moral character of *the man by gifts and doles* should be carefully avoided. The settler must realise that he lives in a world of realities, that there is still a struggle for existence, even if the external winds and conditions are tempered to the shorn lamb. The remaining fraction of the struggle we would certainly not do away with, for it is no less valuable, nay necessary for the formation of character than is the struggle for existence in the outside world. Suitable work is by *no means an unimportant factor in the treatment* of the consumptive, indeed, it must be looked upon as the central pivot of the whole system. It is, however, *the focal* point of great and numerous difficulties. To obtain food a man must work, unless another comes to his assistance. In order therefore, that a consumptive may live he should also work and this he can do if he be given the opportunity and conditions in which to perform the selected tasks *allotted to him*. There is in the consumptive a potential, though a limited, source of energy. That energy can now be made available under known and well defined conditions. Now by continuous observation and research and by a study of various industries, the kind of work and the hours worked, *a knowledge of the conditions of work desirable for a* consumptive has been arrived at. The problem therefore resolves itself into the practicability or otherwise of setting up industries which, when *run by consumptive labour* can be made to return a remunerative rate of wages. Can any means be found whereby the produce of such industry can compete in the ordinary market, for unless a market can be found disaster must quickly ensue. Our outlook must therefore be much wider than that of employing men at a simple occupation at which a little money can be earned. The greater the wages earned *the better the financial position of the consumptive settlers*, the less will be the call upon charity or the State for their upkeep. The greater the proportion of earnings to the subsidy the greater also will be the *man's* own self respect. We must clearly keep in view the important problem of permanent, remunerative industry, playing at a trade must not be countenanced under any circumstances.

The Training of the Industrial Worker

The days of the old craft guilds have unfortunately passed away. In those days a man was a skilled craftsman, and turned out an article at which *he had worked from start to* finish. To day there is no market for the product of such craftsmanship. The machine has revolutionised man's work, and without its aid this work is no longer remunerative. We have only to question the great bulk of the working men *of to day as to their* occupation to learn that they are machinists. *For the most part* there is no special skill required for the job. It is astonishing how completely the workman's faculties may lie dormant during *most of* the operations called for from the machinist, and to this the unrest of the present day may in some measure be attributed. We educate a man's faculties up to a point, we then allow him to go through life without calling *for their use*. It is *obvious* then that when we talk about training a man to be this or that kind of skilled artisan or craftsman, we are literally talking folly, though we may not always realise the fact. *In the factories in large centres*, except in the case of the "*key men*," thorough training does not exist, and, in the sense we know it, is never called for. A man is set to look after a machine, and for this *little technical training or skill* is needed and the instructions given to him are brief and the directions simple. The machine does the work, all the man does or has to do is to set the pace. Such, in brief, is the environment *from which, for* the most part, our patients come, and *their diminished* powers have to be readjusted to their new surroundings. We have no alternative but to take as our model the normal industrial world even though we may have to modify it in *certain details*. We *must* eliminate certain factors which would inevitably make for disaster to the consumptive. *All isolated efforts of training* we are convinced, must inevitably prove futile. Individual labour cannot ensure a turnover by means of which the *consumptive* can compete with the healthy labour of the modern factory, unless we can get a large turnover we cannot provide a remunerative wage. But though the attempt to earn a *good* wage in the open market involves disability and death to the consumptive, we can modify methods and provide special conditions wherein the profits are used to increase his pay. We believe that with perseverance success may be attained in this difficult task even for large numbers. We have, indeed, proved it among small numbers. We had first to realise that the working man of to-day has to be trained in the majority of cases, not as the master of a trade but as a hand in a factory. Having realised this, our task was greatly simplified. It amounted to training him to be a hand. Fortunately he wants nothing more to enable him to earn his living, for our difficulties would certainly be infinitely greater were it necessary to teach each man a skilled trade. As our community grows, however, we have room for another class of worker—the consumptive who is already skilled and who desires other environments and another position. Such an one can always be accommodated in the settlement and his advent is hailed with delight by the colony authorities; for, just as the factories in the outside world employ men in special offices and lay positions, so also the consumptive community has room and employment for all of them. One trade sets in motion another, subsidiary branches soon give evidence of sprouting, and within a short time an office staff is required and develops; a packing department and a designing shop become necessary and make their appearance, and, one after the other, various side lines spring up. It is the knowledge that the concern is alive and progressing, that it can and will employ its hands permanently, that makes for the contentment of mind of the consumptive village settler. The life he leads is as near as possible to the old one to which he had become accustomed. The weekly wage is earned and regularly paid and, finding it possible to live decently and without running into debt, the colonist settles down just as he would have done had he migrated voluntarily from one regular centre of industry to another.

It must not be supposed, however, that a tuberculous community is in all respects like a community of healthy persons. From the psychological point of view the two are very different, and this difference is most marked in the "minor matters of the law." Whether we are brought into closer contact with the workers and their families than would normally be the case in an ordinary community, it is impossible to determine, but on the whole small domestic trials appear to affect the mental outlook of the consumptive to a much greater extent than they affect that of normal individuals. The exaggerated care they take of their health is very evident even to the casual observer. They will run no risks. These characteristics alone supply almost convincing evidence that the results of treatment and residence in a settlement should be infinitely more satisfactory than a system in which patients, after a short residence at a sanatorium, return to their former surroundings.

The Family of the Consumptive.

It may be, indeed it has been, suggested that the village settlement is an expensive method of attaining an end that might be achieved by simpler and less costly means. Is it not possible, it is asked, and would it not be equally effective, to provide workshops in town where, under a special arrangement, these consumptives may work and earn their living? Emphatically, No! The village settlement does much more than provide a job for the consumptive; it also makes provision for his family to be reared in healthy surroundings and under such favourable conditions that their resisting powers may be built up and maintained. At first sight it is not quite evident why this should be the case, for it might appear that to bring a healthy family into a village in which there are more consumptives than are found in an average normal village must increase the risk of infection to the healthy. On consideration, however, this argument is found not to be valid. Let us, for a moment, picture the life and surroundings of a typical and failing consumptive in a town. His working hours being cut down, his wage is also reduced; it follows that the total amount available for the purchase of food for the family is correspondingly low; consequently, the family are underfed, badly clothed, and live in a low-rented house in a poor neighbourhood. The facile descent of the consumptive working man down the social scale is well known, and if lowered resistance plays any part in infection, the members of the family of such a man are in an all too favourable position to contract an infective disease. We have present the two essentials for infection: (1) Lowered resistance due to the economic straits to which the family has been reduced; (2) the massive dose of infective material available and active—this latter the outcome of bad housing conditions. Neither of these factors is of and by itself responsible for the spread of the disease, but there is a vicious circle set up. How complete is the reversal of this picture at the colony. The man receives a wage which, together with the subsidy, enables him to obtain an ample food-supply for his wife and family. He is instructed how to deal with the infective agent—the sputum; he occupies a house in which there is some possibility of conforming to hygienic laws. The children enjoy the inestimable advantage of good playing fields instead of a dirty street.

Conclusion.

The reason for the advocacy of village settlements is two-fold: (1) The prolongation of the life of the consumptive without increasing the infectivity of the case (the probability is that the infectivity will be very much decreased, but proof of this is at the moment wanting); (2) the healthy rearing of the next generation and the production in its members of increased resistance against the disease. These objects obviously cannot be attained by the mere provision of workshops for consumptives near towns even if the labour be subsidised. Indeed, such a method would seem to put a premium on infection. It would serve no useful purpose; it would conduce neither to the arrest of the disease nor the prevention of the spread of infection. All the adverse conditions of the infected worker's home life would be ignored and subsidised labour of an infective nature, with all its dangers to the community, would be allowed to wander at will through out towns.

The village settlement would provide decent conditions for the families of consumptives, and, on the other hand, a hospital for the most advanced cases.

Of all the departments of the colony none is more successful from the humanitarian point of view, none more advantageous to the general community than the section set aside for those suffering from advanced tuberculous lung disease. The cry of those who condemned the admission of advanced cases to a colony is drowned, and for ever; the complete success of the measure is assured. The grisly idea of a "home for the dying" is relegated to the past. The "hope" of the consumptive is encouraged to the end, the encouragement taking the extremely practical form of allowing him to observe other consumptives in the various stages of convalescence. The chances of getting better are always before his mind. And the effect on the minds of those who are comparatively well is exactly the same as on our own. "The other fellow has it, not I," and in this may be summed up the whole psychology of the position. Not necessarily side by side, but under specially defined conditions, all stages of tuberculosis can be accommodated on the same estate. It is an enormous advantage that it should be so; it has simplified the machinery of running the various institutions which are now considered necessary for the treatment of the disease. Moreover, it has simplified to an equal extent the running of the industrial settlement.

Village settlements when formed will differ from each other in a thousand ways. The industries carried on cannot always be the same, and the types of inhabitants will differ in different areas. It is impossible to sketch any hard-and-fast plan. The only matter of importance is that the principles laid down should be grasped and followed; a newer and fuller opportunity will then be offered both to the consumptive and the community for a beneficial readjustment of their mutual relations.

CLEAN CUPS IN THE NAVY.

THE Admiralty is, we are glad to see, arranging that in future all glasses, cups, and tumblers used in naval canteens are to be disinfected in boiling water as soon as they have been drunk out of. This follows on the decision to secure disinfection afloat that we mentioned in our issue of Oct. 11th, 1919 (p. 672), and should materially reduce the incidence of sputum-borne infections in the naval service.

PUBLIC HEALTH IN BRITISH HONDURAS.

THE estimated mean population for the year 1918 was 43,368. The birth-rate was 41·252 and the mortality 49·368 per 1000 of the estimated population. The excess of deaths over births was 342. The number of illegitimate births was 702 out of a total of 1799, or 39·02 per cent. With most other places in the world the colony suffered in 1918 from a severe influenza epidemic. Great distress and suffering prevailed. Whole families, especially among the Indian villages, were practically wiped out. In many cases no nurses or doctors could be obtained to visit the sick. Splendid work was done by private individuals in assisting the Government to deal with the situation. The death of Dr. Winter was due in a measure to his self-sacrificing and unsparing efforts to attend to the sick after he himself was attacked by the disease. Vigorous steps to reduce the prevalence of hookworm, which, with malaria, saps the vitality of the people in tropical countries to such an alarming extent, especially among the Indians, were carried out by the medical department with favourable results. Rain fell on 186 days in the year in Belize and amounted to 64·66 inches. The daily average number of patients under treatment and care was: in the Belize Hospital, 46·03; in Corozal Hospital, 8·62; in Orange Walk Hospital, 5·81; in Stann Creek Hospital, 4·85; in Toledo Hospital, 6·73; in the Lunatic Asylum, Belize, 66·04; in the Poor House, Belize, 49·25.

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An Oration.

THE REV. JOHN WARD AND MEDICINE.

Being the Annual Oration of the Medical Society of London, delivered on May 10th, 1920,

By Sir D'ARCY POWER, K B E, F R C S Eng, F S A,
SURGEON AND LECTURER ON SURGERY ST BARTHOLOMEW'S HOSPITAL

Mr President and Gentlemen,—In a previous address[1] I gave some account of the Rev John Ward, A M, vicar of Stratford on Avon, whose commonplace books have long been amongst our treasured possessions

I propose to day to consider his medical knowledge—as he reveals himself to us—in somewhat greater detail Even in his early days, when he was a resident Master of Arts at Christ Church, Oxford, he had a strong bias towards "natural science," as we should now call it—a bias which was strengthened by the original work of Willis, Lower, Wren, Bathurst, Boyle, and Hooke, whose names are household words to the modern student of anatomy, physiology, chemistry, and physics

At the Restoration, when those who had become inured to the rule of the Commonwealth found themselves somewhat out of harmony with the Royalists, Ward, like many others, determined to leave Oxford, and, having a competence, debated for some time whether he should become a divine or a physician He visited London repeatedly in the year 1661–1662, and attended the lectures of Sir Charles Scarborough at the Barber Surgeons' Hall in Monkwell street, visited St Thomas's and St Bartholomew's Hospitals, and made inquiries about the cost of foreign medical degrees Botany[2] and chemistry as the foundations of medicine greatly interested him, but the call of the Church prevailed He bought himself the Vicarage of Stratford on Avon, and remained there till his death in 1681. The bodies of his parishioners—dead as well as living—and especially their urines, interested him much more than their spiritual state, and where one page of his diary is devoted to texts, sermons, and theology, there are 20 dealing with medical topics Like many medical students of the present day he loved a prescription, and he eagerly noted down the formulæ which he had heard or seen used by an eminent physician Willis was facile princeps in his estimation partly because Ward had known him at Oxford, partly because Willis was just acquiring a good practice and was called into consultation in the more serious cases which occurred amongst Ward's parishioners and neighbours

Ward himself was like Boyle and Pepys, versatile and curious, a type of mind not uncommon amongst men of his generation He wished to know all that could be known about everything he saw If he went to a goldbeater's shop he desired to know exactly the processes used and the weight and thickness of the products, the pursuit of the Philosopher's Stone interested him greatly, not because he had any belief in the transmutation of metals, but because it led to chemical processes and was in the nature of experimentation In this respect he was a true disciple of Boyle—the author of the Sceptical Chemist—for all things were put to the test of experiment "Don't think, try,' was the watchword of the Oxford School of Science long before it was adopted by John Hunter, and in this school Ward was educated Fortunately for us he had a bad memory and therefore committed his thoughts to paper, we are thus enabled to follow their train In the long winter evenings he read much, and it was his habit to make a digest or running commentary upon what he read Riverius, Fuller's Worthies of England, Velthusius, Willis's De Cerebri Anatome, Lower, Boyle in all his works, and Highmore were his constant companions, and throughout the period under consideration—1660 to 1668—he must have given a standing order to his bookseller in Oxford to send him, not only the new books on science as they appeared, but even the new editions He must, indeed, have been in possession of a very good library

There is no doubt that he prescribed for and treated his parishioners of the humbler ranks, although there was an apothecary and at least one physician living in Stratford during his incumbency He considered it a part of his parochial duty and the services he rendered were gratuitous Such treatment of the poor by the parson of the parish does not seem to have been unusual, for he says —

> 'Watson Parson of Sutton Coldfield in Staffordshire hath an extraordinarie way of cureing dropsies by ye help of pills and a dyet-drink Hee hath likewise a kind of Unguent made, as I suppose of Tarre and ye basting of a shoulder of mutton and of soot (as they tell mee) or some such thing and this cures any sore presently

This was clearly a crude form of Unguentum Picis

From time to time, too, he did a little minor surgery, and he has a good surgical aphorism "Allways lay a wound open whether it bee fresh or ulcerated" He says —

> 'Remember to get a speculum oris and other instruments fit for chirurgerie when I goe to London and a great case to hold them

There is a note —

> Issues made in children's necks att 2 days old good against convulsion fitts Remember to cut ym with my owne hand and frequently to let blood with my owne hand In making Issues use a green pea to draw, Ivie peas made of Gentian Roots peas made of Hermodactyl as I have heard 'Remember in Agues and ffeavors 1st to bleed and then to give my powder and plaisters to break ye neck of ye disease afterwards

He was observant of cases as they came under his notice and seems to have had some idea of the metastasis of cancer, for he writes —

> 'Persons yt haue Cancers after a while haue glandules arising in other parts wch may infect further although ye other should be taken out

Contemporary Methods of Treatment

The contemporary methods of treatment can be gathered from various entries Thus, of pleurisy with effusion, Ward writes.—

> "When an incision is to be made into ye Breast open itt betwixt ye 3rd and 4th true ribb reckoning upwards yt is just aboue ye diaphragm and to yt purpose apply a Caustick wch is very strong and will eat through ye Muscle yn make an Incision and keep itt open with Tents This course was taken with one who had an hydrops pectoris and itt evacuated much water but at last itt ulcerated and ye man died A Caustick if well made in two hours does ye buisnes 'That person yt had a hydrops pectoris with laying one hand uppon his breasts and another upon his back and shaking him ye water swashed so about yt those that were by heard it plainly

The treatment of lunatics was drastic

> "A good course for mad people (is) to bleed att both armes and att both feet and yn att ye haemorrhoids by Leeches yn att ye Veine of ye forehead and tongue and nose and att ye temporal artery Extract of Hellibor gr x once in 4 or 5 days very good for madness proceeding from melancholia Many mad persons not cured till 60 times bleeding

Hysteria seems to have been a common and troublesome condition then as now Dr Willis and Dr Highmore both wrote on the subject and Ward makes repeated reference to them The cause was none the less mysterious because it was supposed to bear a relation to "the rising of the mother," the deeply ingrained idea that the uterus was an animal with an independent existence and capable of independent movement in the body Ward says of the cause of hysteria—

> Enquire whether histerical fitts may not be caused by ye wombe rising uppon an object which is beloved and likewise from wind so ye erection of ye yard may proceed from a wind distending itt wch wee call a satyriasis Histerical fits are of several kinds some voluntarie as in (1) erect virg (2) some proceeding from wind (3) some from ye suffering of ye matrix either by emptying of a great Burden as after child bearing or by doing itt wrong in wounding itt in bringing forth ye child (4) or by fumes elevated remember to peruse Dr Highmore on this subject

Highmore, a friend of Harvey, is still known to us by the antrum of Highmore He wrote a small 12mo, published at Oxford in 1660, with the title "Exercitationes duae De Passione Hysterica" Ward evidently looked at the book, for on page 4 is "Sternutatio si superveniat cito paroxysmum claudit." and a few pages further on Ward asks himself—

> Whether itt is not very proper to cause histerical women to sneeze by putting up Orange pill [peel] into their noses or some other way

There was also—

> Aq Histeric and Cinnamomi for women in labour or neer fainting fits Whether fits of ye Mother are anything else besids a meer ventositie of ye wombe

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[1] The Lancet, 1916 ii, 665

[2] The Annals of Medical History vol ii 1919 p 109

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The treatment differed with different practitioners; thus—

> "Dr. Trig cured a woman yt was troubled with historical fitts this way; he laid her uppon ye ground with her face downwards yn took up her coat and gaue her 3 or 4 good slaps on ye arse and they cured her, but I was informed yt he did this before much companie, which I scarcely believe."
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> "Dr. Willis used with historical women this method;—1st. vomited ym; next gaue ym pills and cured several."

EPIDEMICS IN THE SEVENTEENTH CENTURY.

Small-pox, measles, and the plague appear to have been the chief epidemics from which the Stratford people suffered. Tubercle was rife as always; ague was endemic, as the Avon is liable to flood extensively and there are plenty of midges.

The new disease.—The following note was made in February, 1660:—

> "Dr. Eliot sayd hee did obserue yt in some persons who died in ye late new disease yt their faces were very red, their eyes much blood shot, whence hee concluded they would die but before death they would spit blood and pisse blood; and accordingly itt fell out."

Small-pox.—There were several outbreaks of small-pox at Stratford between 1660 and 1666, for the disease was always present before the age of vaccination. It was looked upon as a disease which occurred in the ordinary course of events, and many of the professional beauties of Charles's Court owed their reputation to the fact that they were not pock-marked. Ward notes in January, 1665–1666:—

> "Ye small-pox this year are less yn usuall as hath been observd by diverse: whence that may proceed?"

He writes almost directly afterwards:—

> "R Aq. Theriacal. with Syrupe of Gylliflowers to bee giuen in ye Smallpox when they first come out. The smalpox this yeer haue skaled and yn Risen down againe." "It is an ordinarie thing to haue convulsions goe before ye Eruption of ye smallpox as in Mr. Taylor's Sonne, Mr. Tent's Boy; Remember to obserue itt." "Vomiting a usual signe of ye smalpox, if itt precedes as in David att Mr. Jhonston's." "The Small Pox this year doe ordinairily Rise twice. Some new ones come out after ye others are allmost Ripe as in Mris Townsend; Mris Watts and Seuerall others; yet I haue not obserued any to die of them uppon whom they haue so Come out; whether Nature's disburthening ittself after that manner (Partibus vicibus) does not make itt more safe, whereas were ye eruptions all together itt might be more oppressive to Nature and consequently more daungerous."
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> "In ye yeer 1664 ye smallpox raged very much att Stratford-uppon-Avon; some they came out twice uppon; others they neuer fully came out at all, only appeared a little and went in againe and left a kinde of scruf on ye face. I suppose ye alteration was accounted to ye masse of blood. I think they appear as soon in Whurtles uppon ye face as any where; especially on ye cheek." "I haue observd yt people that haue had ye smallpox are more difficult to sweat yn others, whether itt bee yt ye pores are straightened by ye pox so yt they cannot so well come forth. I mean such persons some 3 or 4 years or more after ye smalpox sweat not so kindly as others who neuer had them."

Chicken-pox.—The difficulty of diagnosing between small-pox and severe chicken-pox did not escape Ward, for he said:—

> "Obserue ye Chrystals what they are and how differing from ye smallpox and Measles and obserue somewhat about ye (origin (?)) of ye pox and other things about itt."

Measles.—It is somewhat remarkable that no thought of contagion entered into Ward's mind in connexion with small-pox and measles. The plague he knew was catching, but measles and small-pox he believed to be climatic or, at any rate, seasonal in origin.

> "The measils a general disease in 1661 yet not much mortal: yt yeer was a cool spring and an exceeding hot Summer." "I obserued one yeer in Stratford after a cold winter, a cool spring and a very hot summer children had ye measels extremely and men about July had Agues and feavors in abumdance." "The Children after ye measils were gone had violent griping pains and skreking in their gutts with starting and frightful fitts." "In ye measils a little before they came out children had strange fits, very frightful and like convulsions so in ye small-pox." "After ye measils some had great paines in their bellies with wormes coming from them." "After ye measils went in people were strangely disordered, some with coughs, some with headache, some with one thing, some with another as doubtles in those diseases much of ye matter is left behind."

Diphtheria (?)—He also gives a note of a case which seems to have been diphtheria, for he says:—

> "Whether ye woman, I think of Luddington, who had her tongue so swelled did not die of a Thrush or ye Aphthae, which are, whether in ye Roof of ye mouth and sometimes black ones, exceeding daungerous." "There were seuerall persons this last plague yt had itt in their throats, whereof many died yet some recouered."

The plague, 1665.

> "Some in ye plague had 3 or 4 sores all att one time uppon them in this last plague." "When ye sicknes was declining one might obserue persons in London streets halting and holding their arms very strangely wch persons they concluded to haue ye sores uppon them. Dr. Wharton said all people yt died in ye Contagion died of ye plague; yt hee opened one yt had no tokens nor sores, yet was full of tokens about ye Breasts. When ye Tokens only appear and not a Bubo itt is less infectious." "The Plague ordinarily begins with vomiting; There are in itt Buboes yt appear in ye Emunctories; Carbuncles wch come anywhere; ye Blanes wch are things like blisters; and ye tokens wch are spots of bright flaming red colour: inquire of Dr. Hodges."
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> "In every Parish in London there are 2 watchers so yt what euer disease a man dies of these 2 must see and signifie ere ye partie bee buried. They are commonly two old women and they haue 4d. or 6d. for their paines; so an apothecarie in London told mee."
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> "Towards August in ye yeer 1668, when we had a strange winter, a strange forward Spring and a strange moist summer, men had frequent swellings about ye throat; pains of ye teeth and such like distempers."

VALENTINE GREATRAKES, THE "STROKER."

Ward gives some interesting facts about Valentine Greatrakes, the celebrated "stroker," or, as we should now call him, the Christian Scientist. Born in Ireland in 1629, and living until 1683, he was in the height of his fame when Ward's entries are made—no doubt from personal observation—in 1666. The Lady Anne Conway, to whom reference is made, was a metaphysician, the wife of Edward Conway and the daughter of Sir Heneage Finch, Recorder of London and Speaker of the House of Commons. After her marriage in 1651 she lived at Ragley, still the seat of the Marquis of Hertford, whose second son bears the title of Baron Conway. Van Helmont, her physician, was in constant attendance, as she suffered continually from severe headache, later associated with fits. In spite of this affliction Lady Anne wrote much and was thought to be one of the most accomplished women of her generation. Greatrakes, who had cured a great number of people in Ireland gratuitously by stroking the part affected, was summoned to Ragley in January, 1666. He was unsuccessful in curing Lady Anne, but during his three weeks' stay he relieved so many persons in the neighbourhood that Dr. Stubbes, the physician at Stratford-on-Avon, published a 4to volume at Oxford in February, 1666, with the title "The Miraculous Conformist." A counterblast was issued by David Lloyd entitled "Wonders no Miracles."

When Greatrakes failed to cure Lady Anne Conway she went to Paris in the hope of being trephined, but the courage of the French surgeons failed them and she returned to England unrelieved. She died in 1679.

Ward's allusions to Greatrakes and Lady Anne Conway will be readily understood in the light of these facts. He says: "The Lady Conway hath great pain in her head, her sutures open." This entry suggests that she may have been suffering from the form of chronic hydrocephalus associated with closure of the foramen of Magendie. In such cases, as my friend Mr. L. B. Rawling reminds me, the intellectual faculties are often increased. If this were so, the French surgeons were perhaps to blame for not having operated.

> "Ye Lady Conway hath something like ye Irish ague. Shee is a great phylosopher. Henry Moore of Cambridge allmost perpetually with her in her chamber."

This was Henry Moore whose uncle threatened to thrash him before he went to Eton at the age of 14 "for his immature fondness in philosophising concerning the mysteries of necessity and free-will." He had a high opinion of Lady Anne Conway, whom he used to call his "heroine pupil."

Ward heard—

> "yt ye Ladie Conway is Sir Heneage ffinch, his eldest sister and a right ffinch—very proud. Yt she came into this miserie by a Brother of hers who had some skill in physick and Chymisterie and tried experiments uppon her; inquire whether itt was not ye same man yt travelled with Jeremy Clark." "My Lady Conway hath a tumour on one side and a scirrhus of ye Mesenterie as is supposed, as Mr. Stubbs says."

Ward had no high opinion of the veracity or methods of Dr. Stubbes, for he says:—

> "Inquire who yt is wch hath wrote a Book of Mr. Gretorixes his Cures wch is about as bigge againe as Mr. Stubbes on yt subject then peruse itt making to my own thoughts some censures uppon itt." "An issue made in ye side betwixt 2 Ribbs for a consumption by Mr. Stubbs, a conceipt sufficient. Some yt made issues under ye Axilla, as Mr. Stubbs said (if it bee not a loud lye) as also Dr. Bathurst's opinion of an issue yt itt givs a vent to nature as hee illustrated in a Barrell wch when it hath vent, and yt ye eating of an onion or any such thing is discernible in ye issue. Hee talked of an extreme ebullition of water in ye Breast wch may Cause a Cough—a loud lye—and moreouer yt hee hath tapt an hydropick person and there hath water come out of his bellie wch skalded ye hands—a loud one. His pretense of understanding ye distinction of feavours and of fluxes together with his rambling discourse of unusuall authors."

Ward had clearly formed an unfavourable impression of Dr. Stubbes, whose cloudiness of thought had probably led him to write the pamphlet, alluded to above, in favour of Greatrakes's cure The methods of treatment recommended for Lady Anne Conway are probably the instructions given by Dr. Willis :—

' First purge per ἐπίκρασιν; yn Bath her feet well, shave her head and apply to itt ye Lungues of sheep warme, new taken out of their bodie ' "My Lady Conway took much of his (Dr Willis s) ens Veneris and is much worse since ye taking of yt Hues his powder "

There are a few more references to Valentine Greatrakes, thus :—

"*The way to cure a deaf ear taken by a Barber at Thrapstone* — first syringe ye ear well yn drop in 3 drops of oil I suppose itt was sallet oil, into ye ear, doe this 3 or 4 times and ye end of doing itt is *to loosen ye matter wch stops ye ear, wch after by often* syringing comes out, sometimes a skinne, some times ear wax as bigge as one s finger end, ye oil is either common sallet-oil or *else some oiley infusion as appeard by ye smell I think* such a method safe and good praemising first purging and Mr Greatrakes his Method to break ye Aposteme by shaking *ye ear by putting ye finger* into itt besids thus loosing ye ear wax as I thinke Deafness is either natural or else itt is catcht by sweating or after a feavour keeping ye head too warme a great cause of *deafnes*, said Mr Gratrack, hence, said hee, there are 10 women deaf for one man and amongst women many countrie women for one Gentlewoman

This is evidence, I think, that the Irish used the shawl as a head covering and the Warwickshire women wore cotton bonnets as they still do.

' Mr Getorix in curing a deaf ear used to lay his ear to ye parties and then thrust his finger yn and so brak ye Aposteme, but ye end of laying his ear to itt seemd to bee this to hear ye swaging of ye Aposteme '

This, however, was a faulty deduction on Ward's part, for the Stroker used a certain amount of mystery, and used to whisper in the patient's ear, "God Almighty heal ye for His mercy's sake."

CERTAIN CASES DESCRIBED.

Ward gives sufficient details of the illnesses of some of his neighbours and parishioners to enable a diagnosis to be made, though in other cases the nature of the disease is puzzling.

Dilated stomach —*The following appears to be a case* of dilated stomach —

"My Lord of Down yt now lys at Roxall, euery night vomits after his first sleep and to yt purpose hath 2 chamberpots allways by him, one to pisse in and another to vomit in "

Enlarged prostate.—There is little doubt that the following was a case of enlarged prostate —

"Dr Gordon, Bishop of Exeter and lastly of Worcester died of a stoppage of the urine wch was supposed to bee ye stone, wch was by a probe often before opened but after being opened no stone appeared but only 2 peices of flesh growing one against another in ye neck of ye bladder yt ye urine could not passe This was strange yet true '

Hay fever.—The next case was one of hay fever.

"A strange sneezing wch Mr Cary of Nobal was troubled with, hee would sneeze 2 or 300 times together, but as soon as ye first frost came itt would leave him in ye winter, yn come againe in Summer with extreme Vehemency, afterwards hee fell into a quartan Ague and an intollerable head ache, with a vomiting allmost all he took, wch might be caused by a metastasis of ye sharp humour from one part of ye braine to some other part

I would suggest that his accessory sinuses became infected and that "the quartan ague" was evidence of suppuration.

Hydatids of lung (?)

' Mylward beyond ye Bridge (i e , Clopton Bridge at Stratford on Avon) brought mee ye bagge *of an Imposthume* wch came from her Daughter or Neece, ye thickest that euer I saw , ye wench felt it long under her left Breast and itt bled and trickled very warme, as shee thought, but about 9 days agoo ceased This morning shee was taken with a Reatching and att last up comes a quart of blood and after yt ye Bagge wch Mris Tyler caught hold of and brought up—very thick '

The question is whether itt comes from her Breast or not or whence itt should come It is probable a Vein was opened in her Breast by strayning herself to take up a payl and so ye mater collected and Imposthumated

If I had to guess about the nature of this case I should hazard that it was an hydatid cyst, "the quart of blood" being blood stained hydatid fluid, or else that the wench was hysterical and had *produced* a *pig's* bladder filled with blood

Other cases.

"A Wench, January 28 (1663-4) vomited up blood, her name was Myllen beyond ye Bridge, wee gaue her some opening pills, supposing it might bee her terms wch might flow yt waye

Another wench at Alderminster wch after heating herself and drinking sate downe to weed in ye Garden and was taken with such a paine in her joints yt shee *could not* stirre, *she was likewise much swelled* Shee was a very fat wench before '

"Make some obseruations of Mr ffrauncis Smith First his stomach grew weak and hee vomitted up all he took, yn came a hiccough and lastly death came suddenly

Clearly I think a case of intestinal obstruction due to carcinoma

' Goodie Cole was so sick yt euery one thought shee would haue *died and* wee gaue her —Lenativ , Cremor Tartari Resin Jalap and some juniper berries and itt brought away ye wind and she grew very well quickly after itt, and withal now and then took a graine *of laudanum* or 2

MIDWIFERY AND GYNÆCOLOGY.

One or two deaths after child birth are noted thus.—

"Itt is daungerous combing a woman s hair in a short time after her lying in as in my Lady Clopton s case wch was done a week after In my Lady Clopton s case they would give her no opium for fear of fixing ye Tumour, they blooded her in ye feet and behind ye ears with Leeches '

It would appear from this that the careful arrangement of the hair previous to lying in is not really for the comfort of the patient, as is usually thought, but is connected with a world wide superstition of the intimate relation of the exuviæ with the life of the individual.

'Mrs Higgins first was extreme hot and Restless before shee was delivred, afterwards her Courses broke downe ye child hid she was delivred with but in 2 or 3 days died After her delivry shee fell into a Cough and phlegme followed her much and about a Month after her deliverie her Legges swelled and yn shee died

In the course of his duties Ward saw much of his sick parishioners and the diseases of women and children especially interested him He was constantly trying to improve his knowledge and learn helpful methods thus :—

"Inquire more distinctly of Goodie Rickets concerning ye Lochia and ye Waters, how usualy they come and in what quantitie in or after deliuerie in child bed

"I haue heard of a woman yt had a procidentia uteri 9 or 12 yeers together, and yet did not gangrene but shee did well and meeting with some Balls put it up and itt staid and she had seuerall children after yt time ' "The Loosening of ye Ligaments or sometimes ye breaking of them is ye Cause of itts falling ' A pessary made in a procidentia uteri of cork with a hole in itt to let passe ye faeces uteri and so couered ouer with wax and some astringent powders mingled with ye wax and putt up ' Whether ye 3rd fitt in an ague or feavour is not more yn ordinarily daungerous as I experienct in a woman—Old Midwife Webb of Snytterfield

Ward occasionally made an effort to generalise from the particular—a faculty which was only just developing in connexion with medicine, for he says —

"Whether a great desire to liue wch some persons manifest uppon their sick beds, as allso a willingness to take any thing wch before they Refused is not a sign they are tending to their long home obserue itt more frequently than formerly

AGUE.

Ague was of frequent occurrence and there are numerous references to it, but it should be remembered that whilst there was much malaria the term ague was used for many cases of fever due to other causes.

"I aduisd one yt had a Quartane to drink Scurvy grasse drink and hee did so and found his well days were much better yn before he drank itt '

Ward learnt this treatment from Dr. Bates—Oliver Cromwell's physician—who practised first at Oxford and afterwards in London, and was known as the "Scurvy grass doctor."

"Allways take a surfeit or an Ague with a vomit in ye beginning If pain in ye side bleed to bee sure What if a man should giue 3 *or 4 drops of* spirit of hartshorne or spirit of salt or any other volatile spirit constantly in a quartan ague to exalt ye blood by degrees, and so to get ridd of itt sooner A surfeit or aguish feavour *coming* after a quartane, ye body not being duly purgd after ye Quartan usualy ends in death, obserued in Mris Hopper of Loxly and Rowly of Eddington attempt such people with a vomit *first in cas* I bee calld bleeding does little '

In connexion with ague he gives an older variant of our adage, "Stuff a cold and starve a fever," for he says "Starve an ague and stuffe a cold "

DISEASES OF THE GENITO URINARY ORGANS.

Diseases of the genito urinary organs interested Ward nearly as much as the diseases of women and children, and a queer contemporary treatment is thus recorded :—

"A Bath usd by Mr Canon of Bampton by advise of a Dr when his water had been stopt 9 days *when hee* first went in to this Bath hee felt easd ye 2nd time hee beganne to faint but lying downe in his bed hee recouerd and yn pist with such violence yt ye stones might bee heard Rapping *against* ye pott side Mr Canon of Church Bampton was often sett uppon his head by his sonne in lawe and then throwne downe to trie if possible to shake ye stone out of ye neck of ye *bladder* but all would not doe

Ward does not say whether he had any twinges of the stone himself, but the mention of the bath in the case of Mr. Canon is followed immediately by the entry :—

"Gett a furnace to heat water in for a Bath and a Cock to lett itt into ye Bathing Tubb, when hott ' *For ye stranguric Brew*

> some new Beer every morning for 12 mornings together and drink a quart of yt ye first (thing) Barme itt but doe not hopp itt; itt must bee fresh brewd every morning."

Another parishioner died of suppression of urine for—

> "John Ventries told mee yt whilst his wife was sick no urine came from her in 11 or 13 dayes but her hands smelt of urine and all her bodie; yea, ye Curtains yt hang about ye Bed and ye hangings of ye Roome; yea, he said that when shee died she had nothing in her bladder notwithstanding shee was so long without urine. Whither should ye urine passe but per halitum."

Urinoscopy.

In his own opinion and probably in that of his neighbours as well, Ward was very skilful in urinoscopy, and there are many entries on the subject.

> "Remember still to prognosticate by women's urine pains in their back." "A woman who had miscarried 3 weeks before sent her water to me. I obserud in itt much white flying consistencies wch very quickly settled to ye bottome in a white substance: itt argued some distemper of ye womb: for itt somewhat resembled ye sediment of childing women." "Mr. Lingen's sonnes water was palish like yt of strangurian persons and had much setlement in itt: hee had an intollerable paine in his head wch was I suppose a Collection of water gathered there after a feavour, being neuer purged." "Whether ye black urine does not allways signifie ye stone or ye black Jaundice." "In feavours when ye water is first high, yn muddy itt is a good signe, but if itt continues high not so." "When ye water is white remember in judging urines to harp uppon these things: ye wormes, paines or flux in ye bellie and paines in ye head." "There is great diversitie of urines: but yt of children and such as drink Rhenish is ye best."

Venereal Disease.

Syphilis and gonorrhœa were rife at Stratford-on-Avon during Ward's incumbency. He distinguishes clearly between them, but neither disease incurred his moral disapprobation. He looks upon them in a purely scientific spirit and as diseases to be cured. Of prophylaxis he says:

> "The way to prevent ye pox is by syringing as ye Duke of Buckingham and some other madde fellows doe, or else by taking a horse and riding immediately after wch I haue heard is ye most undoubted way." "Mich. Palmer troubled with a gonorrhœa and a swelling in his groin wch swelling seemd to mee who handled itt to bee about ye upper part of vasa deferentia towards ye bladder, itt is much swelled sometimes. Whether itt may not be caused by *ye putrefying of some humours about ye part or rather ye sperme.*"

This appears to have been a case of gonococcal infection complicated with a hydrocele, but the term gonorrhœa was used in its etymological sense. It consequently included the discharge in cystitis, tuberculous disease of the kidney, prostatic abscess, as well as the specific inflammation due to the gonococcus.

ON EMBALMING.

Even death did not end the interest he took in the bodies of his parishioners. He gives details of the process of embalming, and it would not surprise me if an embalmed body were found some day in the churchyards of Stratford or Welford, the two parishes which he served.

Malignant Disease.

> "In the Autumn of 1665 a cancer in Mris. Townsend's Breast of lveston was taken off by 2 surgeons. First they cutt ye skinne s and laid itt back; yn they workt their hands in ytt one above the other below and so till their hands mett and so brought it They had their needles and waxt threads ready but never them, and allso their cauterising irons, but they used them Shee lost not above ℥vi of blood in all. Dr. Needham ...... itt was a Meliceris and not a perfect cancer, but it would have n one quickly. There came out a flow of a great quantity of erish substance as much as would fill a flaggon. When they d done they cutt off one one bitt and another another. Put a lass of wine in and some lint and so let it alone till next day. Yn they opened itt again and injected Myrrhe, Aloes, and such things as resiste putrefaction and so bound itt up again. Every time they dressed itt they cut off something of ye cancer yt was left behind. Ye chirurgions were for applying caustick, but Dr. Needham said 'No, not till ye last, since she could endure ye knife.' They prepared her body somewhat, yn let her blood ye day before. She endured it with infinite patience all along, not offering to lay her hand uppon itt to ease itt, but a warme cloth to ye other breast all ye time. ...... The way how and where itt should be cutt away was markt out with Ink by one Dr. Edwards, who lives at Bridgnorth. ...... Hee said iff they could prevent a Gangræna there was little fear, butt itt might be a cure iff she fell not into a feavour."

She recovered from the operation, survived an attack of small-pox, and died a year or two later. Ward records the post mortem.

> "Mris. Townsend of Alveston being dead of Cancer Mr. Edis and I opened her breast in ye outward part and found itt very cancrous; itt had been broken and a Mellicerous part was yet remaining when wee saw itt; wch being Launct yeilded 2 poringers full or more of a very yellow substance wch came plentifully out of the Cauitie of ye breast; yt flesh wch was grown againe after part was taken out was of a hard, grisly substance wch seemd very strong. The Ribbs were not putrified as wee could discouer nor anything within ye breast of a Cancrous nature for wee runne ye knife within side ye breast through ye intercostal muscles. Dr. Needham hath affirmed yt a cancer is as much within as without ye breast and hee hath seen a string, as I was told, going from ye breast to ye womb. I suppose itt was ye mammillarie veins full of knots wch were cancerous and hung much like ropes of onions. The cancer was a strong one as was evident; wee wanted spunges and things conuenient or else wee had opend ye cauities of ye breast."

REFERENCES TO CONTEMPORARY PHYSICIANS.

Ward says of physicians generally—

> "There are seueral sorts of physicians 1st. some yt canne talke but doe nothing; 2ly some yt canne doe but not talke; 3rdly some yt canne both doe and talk; 4thly some yt canne neither doe nor talk and these get most money."

This was merely a jest, however, for some of the men he most revered were his friends and contemporaries, the great physicians of their age.

Perhaps the most interesting observations in Ward's note-books are his references to Dr. Willis, Dr. Lower, Robert Boyle, and others of his contemporaries who were personally known to him as graduates of Oxford. The references to the Hon. Robert Boyle, the chemist and physicist, are so numerous that they cannot be dealt with at present.

Dr. Thomas Willis.

Dr. Willis, described by Needham "as next to Dr. Harvey, the glory of our English nation," gave his name to the circle of Willis, and is now remembered as an anatomist. Ward, however, knew him as a practising physician, and throws much light upon this little known side of his life. Willis left Oxford in 1666 and settled in London, taking a house in St. Martin's Lane, where he soon obtained a large practice, not wholly to the liking of the other London physicians, for Ward says:—

> "Sydenham and some others in London say of Dr. Willis yt hee is an injenious man but not a good phisitian and yt hee does not understand ye way of practice."

Be this as it may, Willis drew attention to wasting disease associated with sweetness of the urine, and may thus be claimed as the discoverer of diabetes mellitus. He also wrote on hysteria, and Ward says:—

> "Dr. Willis used with histerical women this method 1st. vomited ym; next gaue pills and cured seueral."

Ward records:—

> "Crabbs eyes powdered and put into vinegar where they will ferment, yn decant ye vinegar and after yt make use of itt. Dr. Willis his receipt. Remember yt I inquire of D. C."

D. C. was Court, who was "prentice to one Mr. De Laune an apothecarie in blackffryers in London." Mr. De Laune is now known to us as one of the early masters of the Society of Apothecaries.

> "Remember to inquire about Dr. Willis his syrup of sulphur when I goe to Oxford and see and buy some of itt." "Whether a disturbed urine does not usualy signifie some paines in ye head. Remember to trie itt." "Whether ye giving a clyster euery day to persons in a malignant feavour with salt of wormwood and a spoonful of juice of Oranges is not very proper. Dr. Willis usd itt with Mr. Levine." "Dr. Willis after his antiscorbutick electuarie made of cons. of Lujula, Cochlearia, Crabs eyes and spec. Diatria. santalon and juice of Lemon with troches of Rhabarb." "Prescribe juice of nasturtium, dandelion and juice of scurvy grass with white wine to take six spoonfuls of itt after ye electuarie. Dr. Willis hath an admirable way of making juleps but not by distilled water as many doe." "Remember to trie sulphur and honie for a cough and garlick pricked ful of holes and butter. Dr. Willis his balsame of sulphur some such thing." "Remember yt I inquire what Dr. Willis his dyet drink was and resolue to make much use of dyet Drinks in Hectiques and know like wise what Sallamans dyet drinke is and means." "Dr. Willis praescribed Vervaine water and ye powder of Vervaine for ye headache." "Salt of Tartar and Ginger ye best way of praeparing Apium withal, as Dr. Willis affirmes."

Parsley was used in coughs and colds as well as a lithontryptic. The use of salt of tartar is an indication of Dr. Willis's adherence to the newer school of chemical physic as opposed to the older physicians who depended rather on herbs and roots for their remedies.

> "Dr. Willis advised Mr. Treble to infuse filings of Iron in white wine yn mix with itt aq. Limacum composita and aq. Lumbricorum. When hee took ye water hee took pills constantly and an electuarie."

The iron tonic here recommended would probably have been equally satisfactory without the snails and earthworms, though there are some who still believe in the virtues of mucin.

> "Dr. Willis much commends Firres ale; I suppose because it holds sulphur in itt wch volatilises ye blood." "My Lrd. of Downe dead under Dr. Willis his hand in fluxing as I hear." "Dr. Willis hath rich peaces of plate presented him as well as great ffees as Mr. ffrancis says." "Dr. Willis his purges generaly are very gentle ones but on ye contrarie Dr. Speed's are very feirce." "Dr. Willis said yt ye Duke of Cambridge had mala vitæ stamina."

This was equivalent to saying, in the language of the present day, that he had "specific disease." It was spoken of Charles, Duke of Cambridge, who died on May 5th, 1661, the eldest child of James II —then Duke of York—and Anne Hyde, his wife The statement is said to have cost Willis the Court practice which he was just acquiring, though, as Willis was a staunch Protestant, there may have been other causes to account for the loss The child afterwards came under the care of Sydenham, for Ward says —

> There was a great phlogosis in ye Duke of Cambridge his bowels Dr Sydenham kept ye Duke of Cambridge alive 3 weeks and the Dutchess thought hee would really have cured him hee did itt by some cooling water or other wch hath got him some credit Hee was also with Sir Richard Bishop for his gout but did little except pultisse him with milk and crumbs of bread Hee aduised Mr Bishop to fast one day in a week for his Rheumatismus so yt humor would spend ittself

Salt of vitriol is reckoned by Dr Willis amongst such vomits as work gently

> ' Remember yt I studie ye Braine more particularly with its office and use and diseases incident to itt according to ye new anatomie and not ye old stuffe (1663 October)

In pursuance of this design Ward must have bought Willis's Cerebri Anatome as soon as it was published, for in February or March, 1664 65, he makes extracts therefrom

Blood Transfusion by Dr Lower

There are various entries about Lower, and descriptions of experiments conducted by Lower or at his instigation

> A dissection Thursday November ye 16 (1664) first of ye Testicles of ye spleen then of a bitch wherein wee saw many excellent things ye parastate vasa deferentia prostate and so ye common passages Syringe some ink into ye Crural arteries and itt appears in ye vein wch argues an anastomosis

It is clear from this that the anatomical proof of the circulation was not yet complete

> Dr Lower let one dog s blood into ye bodie of another by opening ye veins of one and ye arteries of another and putting in a quill into each and so letting one blood on ye other side ye one died ye other liud another dog yt had 2 Vena Cavas as they say —Dr Lower
>
> They had syringed in Beer into ye Crurall Arteries and likewise Infusi Croci Metallorum

The crocus metallorum, or liver of antimony, was a violent cathartic and emetic It was given in doses of from 3 to 6 gr.

> After a dogge hath been let blood and lies dead at your feet you may let ye blood of another dogge into his veins and so reuiue him againe inquire further into ye truth of it

These experiments of transfusion are recorded by Ward in the year 1665 They refer to Lower s classical experiments on transfusion which were suggested by Christopher Wren s injection of various drugs and poisons into the veins Lower passed blood direct from the artery of one dog into another in February, 1665, at Oxford, in the presence of Robert Boyle and others Ward perhaps rode over to Oxford from Stratford to see the experiment On Nov 23rd, 1667, Lower transfused Arthur Coge at a meeting of the Royal Society, but it is only in the recent war that his methods have been employed so extensively as to have passed beyond the experimental stage They are now firmly established as a remedial measure of great value in properly selected cases and with some modification of technique

> The Diaphragma is a muscle and is of use in Respiration and I haue heard yt Dr Lower says yt broken windedness proceeds from a breaking some vessel in ye diaphragme and yt hee can make a dog suffer and appear as broken winded by cutting them
>
> Linseed oil and oil of sweet almonds usd by Dr Lower to bee likt with a stick of Liquorish for distempers of ye lungues Dick Lower told mee yt they had searchd ye Testicles of a Boar and could by no manner of means find yr any but one small nerve coming thither whence they conclude yt ye sperme cannot be ye result of ye succus nervosus but somewhat else from ye arteries

This was a part of the experimental inquiry which destroyed the long established hypothesis that the fructifying power of the semen was derived from the nervous system in the form of a succus nervosus

Sydenham, Scarborough, and Prujean

> Dr Sydenham aduises a vomit 2 hours after a gentle dinner after vomiting hee giues a narcotick potion or Bolus to allay ye tumult yt ye vomit hath made

Of Sir Charles Scarborough, to whom Dr Harvey left his gown, Ward says —

> Dr Scarborough There was a person dissected att London about October 1664 who wanted the pectoral muscles yet had ye right use of his armes as I heard wch Dr Scarborough said was neuer heard of before

Sir Francis Prujean

> "Dr Prujean came from Lincoln to London hee was a mean man at first and was faint to leave London twice or thrice because he could not get a maintenance there

Many of us, no doubt, have felt the same Sir Francis Prujean (1593 1666) was the son of the Rector of Boothby in Lincolnshire He was a sizar of Caius College, Cambridge, and after graduating he practised in Lincolnshire till 1638 He then settled in London and acquired a large practice, attending Queen Catherine when she had typhus fever, and became President of the Royal College of Physicians

Fraizer, Needham, Peachy, and Hollier

> The Queen s distemper I hear is too eager flowing of ye menses and thereof she is aduised to go to Tunbridge waters wch Dr Phrasier says will confirm and strengthen ye parts The King hath a high opinion of Dr ffrasier and says all ye physicians are fools to him A whey of Dr Phrasier for Mr Bishop ℞ Marmor Calabr ʒiij Cremor tartari ʒss Seri lactis lib ij Dr Phrasier gaue some pills to Mr Bishop for his Rheumatismus likewise but I imagine not with much success as appeared by ye effects

Sir Alexander Fraizer was a member of the Durris family and was born about 1610 He probably received his early education at Aberdeen and in 1635 he graduated M D at the University of Montpellier Returning to London he was elected a Fellow of the Royal College of Physicians in 1641 He was an ardent Royalist and shared the exile of King Charles II, who appointed him physician in ordinary after the Restoration, and created him a baronet of Nova Scotia in 1673 He attended many members of the Royal family and was in charge of the operation of trepanning Prince Rupert s head in February, 1666 He died in May, 1681 Clarendon says of him "He is good at his business, otherwise the maddest fool alive ' Fraizer had such influence with the King that once when he was arrested for debt he caused the bailiffs to be apprehended, committed to the porter s lodge and there, by the King s command, soundly whipped, from which the Justice himself very narrowly escaped

Dr Needham

> Needham allways aduises to praescribe even in feavours something against ye wormes hee hath proued itt successful Mr Needham a physitian livs sometimes in Shrewsbury sometimes out att Gentlemen s houses Needham saies there is use of old Commentators as there is old posts and stones though itt bee but to show where ye old Road was Says Needham I resolue only *there bee very great urgence or an immediate necessitie for sauing* life yt I will not open a vein Hee adds likewise unles there bee some other extraordinarie occasion for Physitians make blood letting but as a prologue to ye play

Marchmont Needham (1620 1670) was the son of an Oxford graduate who married the daughter of mine host of the George Inn at Burford Marchmont was a chorister of All Souls at Oxford and got his degree in 1637 Ward says at this period of his career he lived in the house of Dr Bathurst, with whom Harvey used to work at Trinity College Needham afterwards became an usher of Merchant Taylors School and was admitted a member of Gray s Inn in 1652 He was essentially a pamphleteer, writing both on the Parliamentary and the Royalist sides In 1665 he published the Medela Medicinæ which is here quoted by Ward It created a considerable stir in the medical world and was answered by Sprackling and Castle

Mr Peachy

> One Mr Peachy of London cures quartan agues hee first purges yn giues his haust 3 days when ye ague is to come itt sweats somewhat and they must keep their beds itt comes away by urine as hee says Hee acknowledges Gentian roots and ye Jesuits bark *in his haust*

If this is either of the two Peacheys of whom an account is given by Mr G C Peachey in *Janus* 1918, pp 121-158, it must, Mr Peachey thinks be John Peachi, Minister of S Paul s, Walden, who afterwards became M D Caen, and an extra Licentiate of the College of Physicians of London

Mr Hollier

> Mr Holliard ye great Chirurgion in Warwick Lane was a poor boy in Couenterie his father was a collier or at best but a poor shoe maker in Couenterie and one Dr Mathias (I think he was Queen Annes Dr) about yt time frequently coming to Combe Abby and using Couenterie much spoke to Abraham Ashby an Apothecarie there to help him to a boy to dress his horses and ride along with him, and Mr Ashby spoke to Mr White ye school master who told him hee could help him to one but his father was a foxing drunken fellow and ye boy yt hee helpt him to was this Mr Holliard ye Chyrurgeon afterwards Dr Mathias died and Mr Holliard got himself a little monie and put himself prentice to Mr Mullins his *father of* Shooe Lane and now hee comes to what hee is Dr Phipps likewise livd with this Dr Mathias before Phipps went to travel

This gossip about Hollier is interesting, and was evidently the contemporary belief. Hollier was the surgeon who cut Pepys for stone. He became Master of the Barber Surgeons' Company in 1673. I have given an account of him in "Occasional Papers of the Samuel Pepys Club," Vol. I., p. 58.

James Molines, to whom Ward says Hollier apprenticed himself, was "surgeon for the stone," and was reputed the most skilful lithotomist of his generation. He died in 1639, and he was succeeded both at St. Bartholomew's and St. Thomas's Hospitals by his son, Edward Mullins, a turbulent and quarrelsome person. Edward Mullins was accordingly dismissed from his post at St. Thomas's Hospital in 1664, his place being taken by Thomas Hollier. Edward Mullins, however, was reinstated as fourth surgeon to St. Thomas's Hospital in December, 1660, and died in 1663. Ward adds a few more details of Hollier, for he says:—

> "Mr. Charles Danvers married to ye daughter of one Mr. Holliard, a chyrurgeon, in London. Remember to write to him for a pair of gloues speedily." "Remember to write to Charles Danvers and to get intimate acquaintance with his father Holliard and to see Amputation made and Cutting of ye stone." "Inquire what ye vomit was wch Mr Brooks says Holliard gaue him wch was but a spoonful mixt with some other stuff wch made him vomit half a dozen times."

OBSERVATIONS ON DRUGS.

The properties of opium, laudanum, and antimony were the subject of considerable inquiry in Ward's time, and he makes several allusions to these drugs.

Opium and Laudanum.

> "The praeparation of Opium in ye Shops is Imperfectly done by adding saffron, cinnamon, and other aromatical druggs to make itt into a Laudanum, whereas ye correction is better performed by a digestion of opium in wine yt is impregnated with an equal weight of Salt of Tartar, ye great power of wch Salt is to correct ye violent as wel as ye Narcotick part of ye Medicine as may bee seene in Mathews his pill, wherein there is a great quantitie of white hellibore, and Salt of Tartar is ye great Corrector."
>
> "Laudanum dissolud in a little Treacle-water and a little syrupe added to itt is excellent in some cases—a graine and a half or thereabouts." "After ye taking of Laudanum, I obserud yt they rise againe very sick and hott and their sleep was only a slumber."
>
> "Starkey told me that ye sleeping properties of Opium may bee separated so as to make itt a hinderer of sleep but ye sudorific and anodyne qualities cannot."

Laudanum, therefore, was at this time a solid, and was dispensed by the grain.

Antimony.—The composition and properties of antimony were still the subject of much inquiry, because, under the influence of Basil Valentine's teaching, it was looked upon as a universal panacea. In 1678—12 years after Ward's notes were made—there were no less than 106 preparations of the metal in more or less common use. Crude antimony was thought to be a mineral consisting of (1) a sulphur partly golden and partly combustible; (2) an undigested mercury of the nature of lead; (3) of a saline and earthy substance. Ward writes that—

> ntimonie hath much salt in itt but little metallic sulphur only arsenical sulphur." "An antimonial (cuppe) is made of ye fashion of a horne." "Antimonie is a rare bodie betwixt and Lead, somewhat higher yn sulphur but lower yn Lead. rtley greatly aims att ye Mercury of itt, wch I belieue hee would open ye bodie of gold: and his reason is this because how itt mixes with gold and merges itt as in ye Antimonial. n allreadie separate ye good Sulphur from Antimonie and itt him in great hopes yt hee shall doe ye Antimonie only; hee there is an Arsenicall sulphur wch yet hee cannot get out and hinders his separation of ye Mercurie." "Antimonie melted gold wll make ye gold look just like itself if itt bee put in just when it is melted, but yn melt ye gold uppon ye Test againe and yt contrariwise flies away, itt purges and makes brittle ye gold yt is very certain." "Take ye emetike qualitie from Antimonie and ye Narcotick from opium and what canne they not doe."

CONCLUSION.

These extracts show the Rev. John Ward as a man of great versatility at a time when the prevailing type of mind was versatile. In many respects he was a true disciple of the Honourable Robert Boyle. Interested in medicine he would have made a good practitioner; a friend of Lower, as a physiologist he would have advanced the science. Willis could have utilised him, and had he stayed a little longer at Oxford he might have come under the spell of John Mayow, the most gifted of the band. Boyle had interested him in the new chemistry, and his restless curiosity led him into metallurgy and the more dangerous quest of the philosopher's stone. But with all this he was a dilettante—spoilt, I think, by the possession of a competency, hampered perhaps by ill-health. He was certainly ruptured, and he died the early age of 52, probably of phthisis.

THE APPLICATION OF BONE-GRAFTING IN THE TREATMENT OF FRACTURES.[1]

BY ERNEST W. HEY GROVES, M.S., F.R.C.S. ENG.,
SURGICAL DIRECTOR OF PENSIONS HOSPITAL, BATH.

UNTIL recent years bone-grafting has been an expedient used only in exceptional cases. But lately, owing to the work of Albee in America, and also to the large number of cases where a serious loss of substance in the shaft of a long bone has to be made good, the application of bone-grafts for the repair of fractures has become comparatively common. In fact, bone-grafting has been so much in vogue that there has been a tendency for zeal to outrun discretion, and so many failures and disappointments have resulted that it is liable to fall into discredit. When used properly, with due regard to vital and mechanical principles, it not only gives good results, but results which cannot be obtained by any other method.

The proposal that recent simple fractures should be treated by a sliding bone-graft taken from the broken shaft is unlikely to be widely adopted for good reasons. It is an operation requiring special skill and experience, and appears to do either too much or too little. In the great majority of recent simple fractures correctly applied axial traction, followed by early movements of the joints, will give rapid functional recovery which leaves nothing to be desired. For such cases bone-grafting does too much. In other cases where there is a persistent tendency to displacement of the fragments (for example, in the middle of the shaft of the radius or at the upper end of the femur) the little slender graft is not strong enough to maintain the osteo-synthesis, and the limb has to be immobilised for a long time in plaster.

Intra-medullary Bone Pegs.

Those recent fractures which require operative treatment usually present a displacement, which is caused or kept up by muscular tension or static conditions. The treatment required will thus be correct apposition and alignment, with as little interference as possible with the vascular and osteogenetic sheath of the bone fragments. Such a method of treatment is found in the application of an intra-medullary bone peg—a method which I venture to think is not sufficiently known or applied. The operation finds its simplest and most typical scope in the treatment of a fracture of the radius, where both ends are displaced towards the ulna, a condition which is almost certain to lead to synostosis unless this displacement is corrected. The pegs, which are 1 to 2 inches long, are made in sets of 8, varying in thickness from $\frac{3}{16}$ up to $\frac{1}{2}$ inch. Each has a small boss or ring at its centre, by which it is prevented from being pushed too far into one fragment. Three conditions limit the scope of the use of the simple intra-medullary peg: (1) the case must be a clean one; (2) there must be no comminution of the fragments; and (3) the fracture should be nearly transverse. (Figs. 1, 2, 3.) If used for the femur the short intra-medullary peg will not serve to maintain correct alignment and bowing will inevitably occur unless a suitable moulded splint or a walking calliper is used.

The bone-peg constitutes the simplest and most efficient type of bone-grafting for fractures that can be devised. The peg becomes rapidly permeated by living tissues and is incorporated by them in a period varying from 3 to 18 months. The bone-graft may have a double function to perform. First, it has to act as a mechanical strut or splint, and for this it requires strength and accurate fitting; secondly, it may have to take the place of lost bone; if no bone has been lost the graft will become absorbed. It is a consideration of these facts which should determine the choice between a dead beef bone or living autogenous grafts. If the graft has merely to act as a temporary nail or peg then the advantage is with the dead bone, because this can be chosen beforehand of the exact size and shape required, and, moreover, it can be taken of much greater density than is often possible with autogenous grafts If a graft has to be completely buried in vascular living bone, then a dead beef bone is just as efficient as an autogenous graft But it is quite another matter if it has to span a gap, for that part of the graft which is not in contact with living bone will survive only with difficulty, it cannot be converted into, or replaced by, living bone except by the very slow process of vascularisation from the two ends, where it is in touch with live bone If sepsis is present a dead bone graft will be capable of no resistance, but will be a focus for bacterial lodgment, but, as I shall presently show, living bone grafts are capable of some degree of survival under a moderate degree of sepsis, and although ultimately a sequestrum may be lost, yet a sheath of new bone is laid down which is probably derived in large measure from the cells of the graft itself

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[1] A lecture delivered at the West London Post-Graduate College on Feb. 13th, 1920.

FIG 1

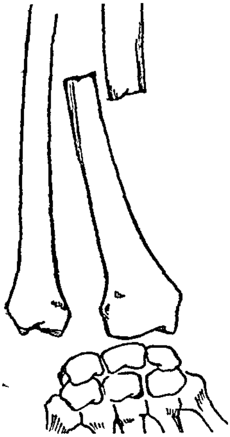


FIG 2

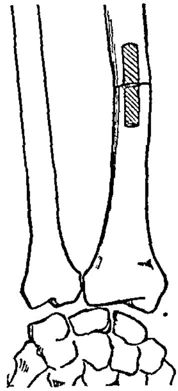


FIG 3

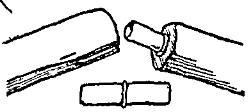


FIG 1 —Typical displacement of a fracture in the middle of the radius
FIG 2 —Short bone peg in position
FIG 3 —Showing how the short bone peg is inserted

I am much indebted to Miss D Pillers for the drawings used in illustration of this article

Exceptional circumstances sometimes justify the employment of beef bone grafts even for gap fractures One patient had already had an unsuccessful grafting operation done, the graft having been taken from his own leg. As he said that his arm was none the better and his leg was the worse for the operation, he naturally refused to have a similar operation repeated, but was prepared for anything which did not sacrifice his own tissues In such a case the graft is prepared from an ox shin bone of the exact size and shape required It is perforated by many holes, which facilitate its rapid vascularisation by the tissues in which it is laid

The Behaviour of Living Autogenous Grafts

I do not propose to enter into any discussion of the exact parts played by the cells of the graft and those of the bed into which it is laid Neither shall I attempt to determine the relative importance of different parts of the graft But I would like to point out certain easily demonstrated characters of the graft which have important bearings on the practice of bone grafting

1 *Limited power of growth* —A living graft does not grow at all in length, and only very slowly in thickness It does not become thicker unless or until it has become incorporated in the skeleton when it is subjected to the strains and stresses normally borne by the long bones From this it follows that the graft should, if possible, be made of the full length and thickness of the bone which it has to replace An illustration will make this clear A small piece of tibia has been inserted into a gap fracture of the radius After some months the graft had become rarefied and no union had occurred It was then sought to make the grafted bone firm by the addition of a plate, which was attached with difficulty owing to the fragile nature of the bone This had to be removed later because of the irritation caused by the plate just beneath the skin, and the fracture still remained ununited In this condition the patient came to me and I inserted a tibial graft of the same thickness of the shaft of the radius This has grown firmly in place, and now, six months later, forms an integral portion of the skeleton, as seen by X rays

2 *The importance of correcting deformity before the graft is inserted* —A graft cannot be expected to act as an intelligent agent and actively correct a deformity Obviously the deformity must first be corrected as far as possible, and then the graft of suitable size and strength must be so soundly fixed as to prevent recurrence of the displacement For example, in the familiar displacement associated with a gap fracture of the lower part of the shaft of the radius, the deviation of the radial fragments towards the ulna, with the resulting dislocation of the hand, it is necessary forcibly to separate the radial fragments from the ulna and to make the graft rather longer than the gap it has to fill, in order that the radius may remain bent outwards away from its companion bone The restoration of the radial curve is necessary to restore its "bucket handle" action, required for the movements of pronation and supination

3 *The necessity for firm fixation of the graft* —Whatever vital properties a graft may have it can only grow to its bony bed if it is fixed firmly thereto It is not like a vegetable seed or plant cutting which is capable of throwing out roots far and near, all it can do is to receive and contribute towards, a little cement substance which will join it to an adjacent live bone with which it is in firm contact Therefore wide apposition, accurate fitting, and firm fixation are essential to the vital union of a graft with its bed

Two experiments on cats' tibiæ illustrate this point In both half the thickness of the tibia was cut out for ¾ inch and the remaining shaft was divided In one the removed portion was replaced and tied with catgut in the other it was fixed by split pins and washers In both the leg was immobilised by a double transfixion apparatus In that specimen fixed by catgut the graft has become displaced and there has resulted a typical ununited fracture In the other, where the graft was fixed by metal pins, firm union has taken place

There is a modern tendency to credit metal sutures with a capacity for hindering repair Of course they may do so under certain circumstances, but, on the other hand, if they afford the best means of fixation of the graft to its bed they are of great value, even if they have to be removed ultimately Fig 4 is from a case of a gap fracture of the radius treated by a "cricket bail" graft in which the fragments of the radius were so fragile that it was necessary to bind them with wire sutures to prevent splitting The figure is taken a year later, and shows complete fusion between the graft and its bed, the wire still remaining in position It is perfectly true in bone grafting as in joinery that the best work consists in fitting without the use of nails, screws, or wire But there should be no hesitation in deciding that when fixation requires a metal suture this should be employed in preference to allowing a loose contact between the graft and its bed

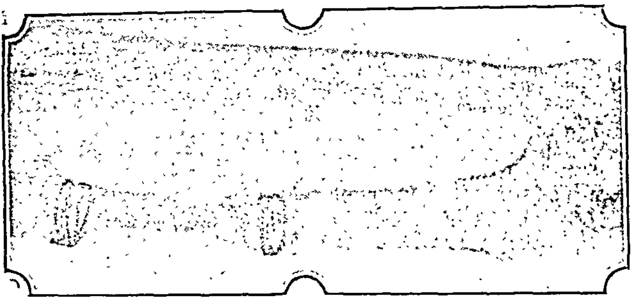
4 *The capacity of a living graft to survive under septic conditions* —One of the most striking qualities which distinguishes a living autogenous graft from a beef bone graft is its capacity for survival, in whole or in part, in septic conditions Two illustrations of this are given, but the phenomenon is of such common occurrence that these might be multiplied many times In the first (Figs 5 and 6) a gap fracture of the radius was repaired by two tibial grafts bolted together over the ends of the radial fragments After a few weeks a sinus appeared, and three months later the X ray showed a quantity of new bone round the periphery of the grafts and a central sequestrum in the middle The bolts and the sequestrum were removed and healing took place A year after the original operation a dense mass of new bone occupied the place of the graft

In the second case a single stout "cricket bail" graft was inserted into a gap fracture of the radius Chronic suppuration resulted, with the formation of two sinuses The X rays clearly showed that a portion of the graft formed a sequestrum, but that there was abundant new bone around it A later figure showed the restoration of the radius after the dead portion of the graft had been removed

This behaviour of a living autogenous graft in the presence of sepsis is, I believe, intimately associated with the preservation of the periosteum of the graft Although I have seen a naked graft heal in position without any periosteum, this has only taken place when the wound has run an aseptic course Moreover, there has never been any appearance of a sheath of new bone by which the graft has been increased in thickness, in fact the naked live graft behaves exactly in the same way as a bit of beef bone. But in the cases just related and in many others where periosteum is used there is an abundant formation of peripheral new bone, and if sepsis occurs there is usually a separation of a sequestrum from the graft.

This is readily explained without assuming any osteogenetic function for the periosteum. The periosteum is a vascular connective tissue membrane which readily establishes vascular connexions with the tissues into which it is transplanted, and it thus serves to link up rapidly the blood-vessels of the graft with those of its bed. Then, if inflammation occurs, the cellular elements of the bone survive where they are free to multiply on its surface, but die in the labyrinth of the Haversian canals where they are choked; in fact, the process is exactly the same as that which occurs in the course of a subacute osteomyelitis.

FIG. 4.



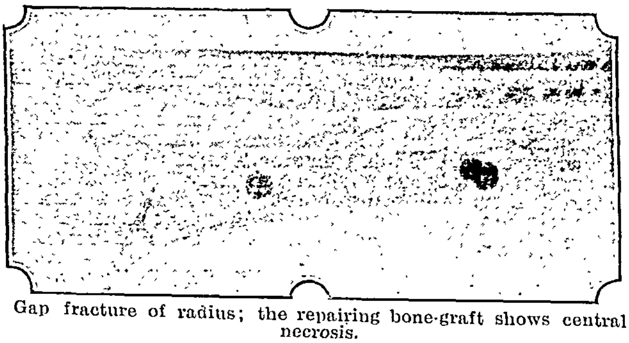
Gap fracture of radius treated by "cricket-bail" graft one year after operation.

The Vital Characters of the Tissues of the Bed into which the Graft is Laid.

These may be considered under the three headings: 1. Latent sepsis in scar tissue. 2. Atrophy of the bone ends. 3. Sclerosis of the bone ends.

1. *Latent sepsis.*—It will not be necessary to dwell on this subject at any length, because it has been so fully discussed in numerous papers dealing with post-war surgery. To some extent it is the most difficult factor in the whole situation, because it is so elusive. At one time it was thought that mere passive delay for a few months would enable the tissues to carry out an auto-sterilisation. But this is often a fallacy. For months, or even years, after a septic gunshot wound, particularly when this has involved the bones, the germs of sepsis lie dormant in the scar tissue ready to spring up to renewed youth and activity if circumstances become favourable. In particular, the streptococci and the *Bacillus coli* behave in this manner and are always ready to wreck the best-laid scheme of bone-grafting. Better than passive waiting for auto-sterilisation is the plan of a careful excision of scar tissue from the bed of the future graft, together with removal of the ragged ends of the broken bone and the replacement of cutaneous scars by pedicled skin flaps from other parts of the body. But this is a very difficult process to carry out in such a way that fresh infection of the tissues does not occur, so that ultimately nearly every bone-graft operation performed for an originally septic wound has to combat some degree of latent sepsis.

FIG. 5.



Gap fracture of radius; the repairing bone-graft shows central necrosis.

In such combat the tissues themselves will be the most powerful agent for recovery, and it is therefore very important that complete hæmostasis, absolute immobility, and absence of any "dead" spaces should be ensured. In this matter it is a question of minute care in tying vessels, suturing the tissues in layers, fixing the graft to the bones so firmly that no movement is possible, and providing for the immobilisation of the limb so that dressings can be done without any disturbance thereof.

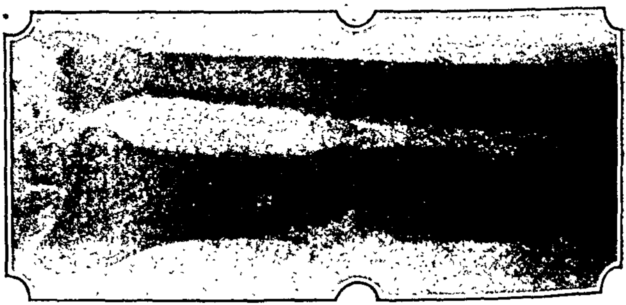
2. *Atrophy of the bone ends.*—In every gap fracture when the ends of the bone have been prevented from coming into contact by the presence of a companion bone (for example, in the forearm or lower leg) or by axial traction the bone undergoes a rapid atrophy. This atrophy is of a perfectly constant character, which has an important bearing upon the mechanical question of repair. It consists chiefly in the absorption of the bone salts and a disappearance of the inner portions of the shaft. Under the X rays the bone appears very transparent; when it is exposed and the end cut off the marrow cavity is much enlarged and filled with soft yellow fatty tissue. After some time it is reduced to a mere shell, so thin that in the bones of the forearm it can easily be crushed by a carelessly applied forceps or even by pressure between the thumb and finger. However much the atrophy, the outside diameter of the bone remains of its original thickness, and at the periphery a thin layer of dense bone is always preserved. Such a bone retains a certain degree of strength simply by virtue of its tubular character. If the tube is destroyed by cutting a piece out of its wall it will split or collapse. Nothing can be screwed to the outside of such a bone, because there is no substance on which the screws can take hold, and if a bolt be passed right through, the tube will collapse if any pressure be made from side to side.

If a graft has to be fixed to such an atrophied tubular bone there is only one way in which this can be done with mechanical efficiency, and that is by preserving the periphery of the tube intact and driving the graft into its cavity.

3. *Sclerosis of the bone ends.*—If the ends of the bone are not kept apart by a companion bone or by traction they rub against one another, and if callus union does not occur they undergo a thickening and sclerosis with the formation of a fibrous union or a false joint.

Under these circumstances the bone ends become of ivory hardness, the vascular canals being filled with new bone and the periphery being thickened by osteophytic outgrowths. Although in one sense such a condition represents overgrowth of bone, it is in reality a type of scar tissue in which vascularity and living cells are reduced to a minimum, whilst inert fibrous tissue and bone salts are present in excess. The main practical consideration is that the sclerosed bone end, as much as the atrophied, is a morbid condition and that the structure which is responsible for non-union of the fracture will equally prevent union with a graft.

FIG. 6.



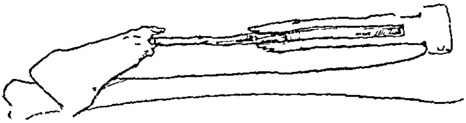
The same case as Fig. 5 one year later, showing massive regeneration of new bone.

These facts lead to the consideration of the operation of the sliding graft when applied to the treatment of an ununited fracture. Fig. 7 is from such a case and is quite typical of the failure which usually attends such an operation. It is from a gap fracture of the radius; a piece of the proximal fragment, about 2½ inches long, had been cut by a twin saw and slid down to a groove in the distal fragment. No union had taken place six months later, and the patient declined any further operation. The graft in such an operation is taken from the most unhealthy and indolent portion of the bone, and it is laid into a bed composed of similar tissues. Moreover, it is so small in size that it cannot act as a strut to the broken bone, which itself is weakened by its loss.

The Technique Employed in Bone-grafting for Ununited Fractures.

General and preliminary technique.—Certain preparatory operations have usually to be performed after the wound has soundly healed. These are: (*a*) Replacement of adherent or thin cutaneous scars by pedicled flaps containing skin and fat taken from the chest or abdomen in the case of the arm or from the opposite limb in case of the leg. (*b*) The excision, after a few months, of all deep scar tissue, including the unhealthy ends of the bone fragments. A culture is taken from this scar tissue, and if a positive result is obtained a vaccine is prepared and given to the patient in suitable doses for a period of about six weeks. (c) About two months later, if the preliminary operation healed smoothly, and about six months after healing if sepsis was awakened, the bone graft operation is undertaken.

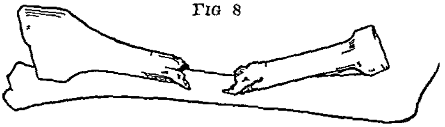
FIG 7



Failure of sliding graft applied to gap fracture of the radius

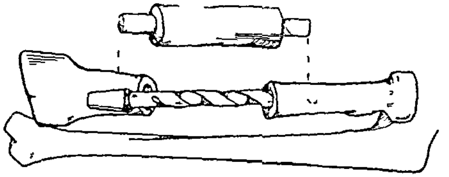
The method by which immobilisation of the limb after the operation is to be secured must be carefully arranged beforehand. The use of plaster of Paris at the time of operation is subject to several serious disadvantages. There is usually much oozing after these operations, and this will make the plaster case foul. A window may be cut over the wound at the time, and by packing in pieces of cellular rubber sponge the serum is to some extent prevented from running between the limb and the plaster. But I am distinctly in favour of postponing the application of plaster until all oozing has ceased. The humerus is the most difficult bone to fix. The best plan is to make a plastic splint of buckram and glue, which should take a broad bearing from the chest and iliac crest and also support the arm in full abduction. To this splint the patient should have become familiarised for several weeks before the operation. In the case of the forearm an internal angular splint with a "cock up" rest for the hand is sufficient for the first week, and then a plaster or two piece moulded splint can be fitted. For the thigh a Thomas splint cradle splint, or a sling to an over head beam is sufficient for the first period, and at the end of a week plaster-of Paris as a spica or a moulded splint should be used. For the leg below the knee a bent Thomas splint or Macintyre is best for the first stage, followed by a plaster case. The whole limb is shaved and painted with 3 per cent picric acid in spirit. At the time of operation it is covered by a piece of sterile stockinette, through which the incisions are made. The edges of the skin incision are fastened to the *stockinette by Michel's clips. No tourniquet is used.* The surgeon wears cotton gloves over rubber to obviate the danger of the latter being torn. All blood vessels are picked up and tied with fine catgut. Oozing from bone surfaces if excessive, is controlled by the use of Horsley's wax. The utmost care is taken to close the wound in layers so that the bone may be well buried in muscle, and this in turn covered by fascia and skin. The more deeply the bone is buried the less likely is it to be affected by secondary infection from the skin. Also deep suturing controls oozing and prevents "dead" spaces. When in spite of all care oozing is well marked a drain of silkworm gut is used and removed in 24 hours.

FIG 8



Gap fracture of radius with displacement over ulna

FIG. 9

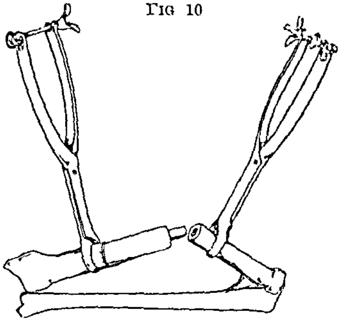


Fragments of radius (shown in Fig. 8) brought into alignment both ends being drilled to receive the pegged ends of the graft

The Bones of the Forearm

The following remarks apply for the most part to the radius. A loss of continuity in the ulna produces so little functional change, that it is questionable whether a grafting operation is justifiable for this defect. If, however, the ulna has to be repaired, the steps of the operation are similar to those undertaken for the radius. There are two operations which have been suggested *for a gap fracture of one of the bones of the forearm* when the other is intact, as alternatives to a tibial graft. *If* there is, for example, an inch gap in the radius, it has been suggested that the ulna should be shortened by rather more than 1 inch and united by some kind of a "step cut" operation. In my opinion there is only one condition which justifies this procedure, and that is the loss of the flexor or extensor tendons at the site of fracture. Under these circumstances shortening the forearm will enable a restitution to be made of the tendons. If this operation is to succeed the shortening of the ulna must be carried out to such an extent as to allow of a free removal of the indolent ends of the radius, because if the latter are merely brought into apposition without refreshment non union will certainly persist. The other operation which has been suggested, of which I have seen some examples, is the removal of a segment from the ulna and the implantation of this segment into the gap of the radius. This is much more difficult than the tibial graft described below, and it is subject to the great disadvantage that the firm splint provided by the intact ulna is lost.

FIG 10



Graft being fitted into its bed by eversion of the fragments

FIG 11

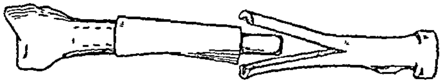
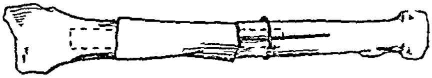


FIG 12.



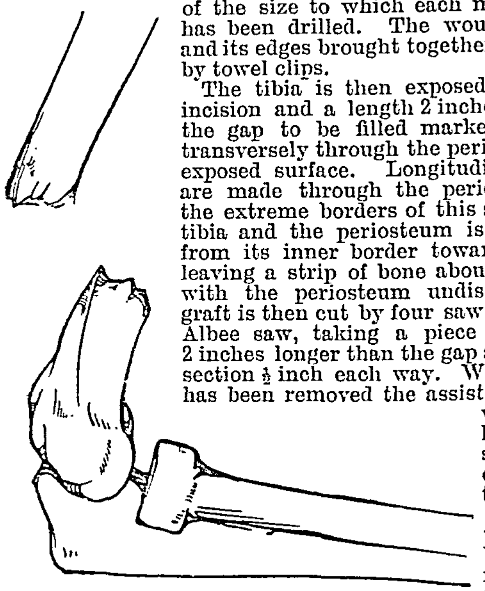
Gap fracture of the radius grafted from the tibia showing one end of the radius split and wired

The "cricket bail" graft.—After trying various types of graft fixed to the surface of the fragments, with a varying degree of success, I have *adopted the use of a graft shaped* like a cricket bail, *cut from the crest of the patient's own* tibia and this has given such successful results that I now use it always *for mending gap fractures of the forearm bones.* The bed for the graft is first prepared by exposing the fractured ends of the bone, freely cutting away the irregular or conical ends, while exposing or baring their surfaces as little as possible.

Each fragment is bluntly separated from the adjacent bone when tied down by adhesions of the interosseous membrane. The fragments should be mobilised freely enough to allow of the end of each being brought well up into the wound. This is not merely for convenience at the subsequent operation, but in order to separate the central parts of the shafts of the radius and ulna as widely as possible one from another. When this has been done each fragment is bored by as large a twist drill as can be driven into it easily—i.e., without cutting away anything more than soft marrow or friable bone. The shaft of the radius usually admits of a ¼ to 5/16 inch drill being employed for this purpose, but the lower end is considerably larger. In dealing with a fracture about 2 inches above the wrist it may be necessary to scoop out the cavity of the lower fragment by means of a small chisel into a hole oval in cross section ½ inch by ¾ inch. The actual size of the hole does not matter so long as a strong sound shell of bone is left into which the cricket-bail graft can be firmly driven.

The depth to which the ends are drilled is not very important; usually it should be about 1 to 1½ inches. Careful note is made of the length of the gap left after removal of the bone ends and of the size to which each marrow cavity has been drilled. The wound is packed and its edges brought together temporarily by towel clips.

FIG. 13.



Gap fracture of the lower end of the humerus.

The tibia is then exposed by a curved incision and a length 2 inches more than the gap to be filled marked by cutting transversely through the periosteum on its exposed surface. Longitudinal incisions are made through the periosteum along the extreme borders of this surface of the tibia and the periosteum is turned back from its inner border towards the crest, leaving a strip of bone about ½ inch wide, with the periosteum undisturbed. The graft is then cut by four saw cuts with an Albee saw, taking a piece of the crest 2 inches longer than the gap and of square section ½ inch each way. When the graft has been removed the assistant closes the wound in the leg, whilst the surgeon proceeds to shape the graft.

The periosteum is turned back for 1 inch from each end, the graft is wrapped in a piece of tetra cloth which leaves the end free for 1 inch, and placed in a small vice. The bare end is cut down by the Albee saw to something near the size of the marrow hole it has to fit. The angles are then filed and the end is passed through the holes of a reaming plate, these holes corresponding to the size of the drill used. The other end of the graft having been treated in a similar manner there remains a piece of bone consisting of a central stout portion, the length of which corresponds to that of the gap in the radius, and two rounded ends, each 1 inch long, the thickness of which is that of the holes in the fragments. To the thick part of the graft a piece of periosteum is attached, with an abundant free margin laterally and at each end.

The wound over the radius is now reopened. The distal fragment of bone is grasped by a suitably curved bone-holding forceps and brought out into the wound. The graft is driven into this, and the projecting cuff of periosteum is sewn round the junction between the graft and the radius. Next comes the critical stage of the operation. The easiest and neatest way to insert the proximal peg of the graft is to lever outwards the proximal fragment of radius after cutting the peg to ½ inch in length. The graft is made to engage in the hole of the upper fragment and slowly the two are pressed back into alignment. (Figs. 8, 9, 10.) The peg slips into its place with a "click," and for the moment all is well, the periosteal cuff being treated as before. But though this is the neatest way of finishing the operation, it is open to one objection, which is that the upper peg is so short that it does not serve to keep the graft and upper fragment in alignment, and there is a tendency for the radius to "sag" inwards towards the ulna at this point.

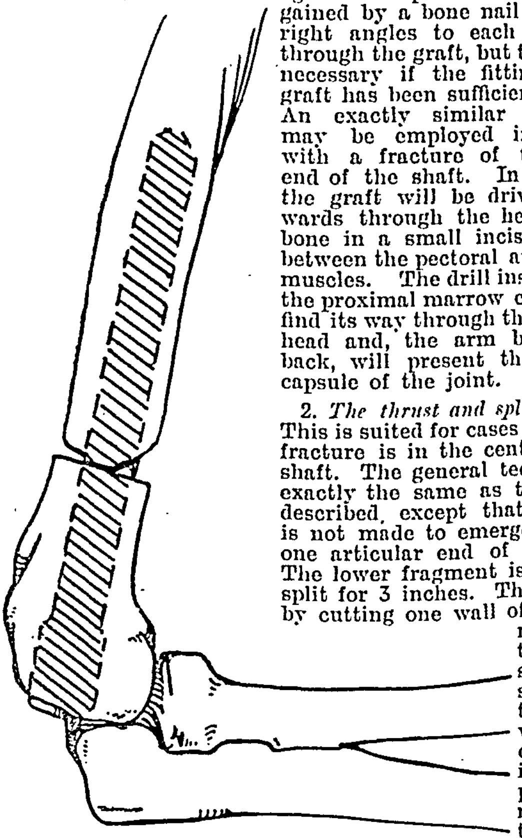
The more efficient way of completing the fitting of the graft is to split the proximal fragment of the radius by the motor-saw for 2 inches. (Fig. 11.) The split is then cautiously prised open and the peg end of the cricket-bail placed in position. The end of the radius is then tied together with a double turn of fine iron wire. (Fig. 12.)

The Humerus.

The humerus presents one of the most difficult problems of repair. Very special care is required in immobilisation, because if this is not done and the arm is left hanging by the side it will drag on the graft. Moreover, the shoulder-joint is apt to become very stiff and each movement of lifting or rotation of the arm puts a great strain on the graft and its fixation. Three types of graft-fixation may be used for the humerus which may be described as the thrust, the thrust and split, and the two-piece graft.

1. *The thrust graft.*—This graft is specially indicated for cases without much loss of substance, but in which there has been so much absorption atrophy that the ends are too fragile for a "step-cut" union. In principle it consists in nailing the two fragments together by means of a stout intra-medullary nail. Take, for example, the case shown in Figs. 13 and 14, where there has been a gap fracture at the lower end already treated without success by a plate. The region of the fracture is exposed by an incision over the external intermuscular septum. Each fragment is refreshed and the ends so shaped as to fit snugly against one another. when the bone is aligned. Then each end is brought out into the wound and drilled for 3 inches by a twist drill, usually by one about ½ inch in diameter. The distal fragment is drilled last, and the elbow being acutely flexed the drill is thrust right through the elbow-joint and out of the skin. This external opening is temporarily plugged by a pair of artery forceps which serve to keep it patent. The graft is now prepared from the tibia unless a beef bone is being used. In either case the graft is 6 inches long and rather more than ½ inch thick, and roughly cylindrical in shape with one end slightly pointed. The pointed end of the graft is thrust into the opening at the tip of the elbow, the margins of which are held apart by four pairs of tissue forceps. It is then hammered into place. When its point has reached the gap of the fracture it is adjusted into the mouth of the marrow cavity of the proximal fragment, and the arm is brought into correct alignment with proper orientation as regards rotation of the forearm upon the arm. The graft is then hammered home until its lower end is clear of the condylar region of the humerus. Extra security against displacement may be gained by a bone nail driven at right angles to each fragment through the graft, but this is not necessary if the fitting of the graft has been sufficiently tight. An exactly similar technique may be employed in dealing with a fracture of the upper end of the shaft. In this case the graft will be driven downwards through the head of the bone in a small incision made between the pectoral and deltoid muscles. The drill inserted into the proximal marrow cavity will find its way through the humeral head and, the arm being held back, will present through the capsule of the joint.

FIG. 14.



The same case treated by means of a "thrust" graft.

2. *The thrust and split graft.*—This is suited for cases where the fracture is in the centre of the shaft. The general technique is exactly the same as that above described, except that the drill is not made to emerge through one articular end of the bone. The lower fragment is carefully split for 3 inches. This is done by cutting one wall of the fragment by the motor-saw and splitting the deep wall by a chisel. It is very important not to bare this part of the bone by separating its covering of soft parts from it. The graft is then hammered into the proximal fragment for 3 inches and laid between the split halves of the distal fragment. These halves are then brought together and fixed by a double turn of soft iron wire.

In both these types of operation the graft is, of course, bare of periosteum, as it has to lie entirely buried in the marrow cavity of the humerus.

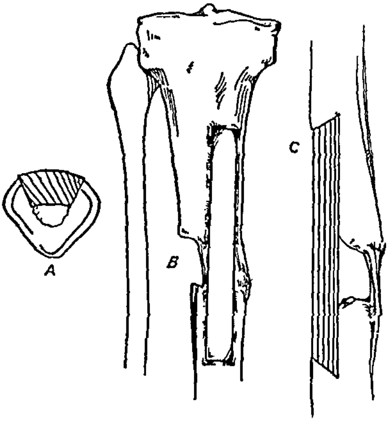
3. *The two-piece graft.*—If there has been such a great loss of substance of the bone that the two ends cannot be brought into apposition it will be necessary not only to fix the graft into each fragment, but also to bridge the gap in such a way as to give the best chance of new bone growth in this interval. Two grafts are taken; one is driven firmly into each fragment and the two grafts are then united to one another in the gap by bolts or wire. In a gunshot fracture requiring an autogenous graft it is necessary to

cut two tibial grafts, or one long one which can be cut into two Each has ample periosteum attached to it The periosteum is turned back from the end driven into the marrow cavity, and this membrane is then wrapped round the line of junction between fragment and graft The two grafts being united by two bolts or wires there will be a double thickness of graft in the gap, and this will be entirely covered in periosteum

The Tibia.

The tibia presents special difficulties of its own The bone is to a greater extent than any other long bone subcutaneous, and this means that scars of wounds are usually adherent to, or are immediately over, the seat of fracture Further, in adults the bone is dense and avascular, and not suitable for rapid callus repair Two separate conditions require consideration, firstly, an ununited fracture without much loss of substance, and, secondly, a typical gap fracture

FIG 15



Gap fracture of the tibia united by an "inlay" graft (B) At A and C are shown the section and side elevation of the graft

1 *Fracture without loss of substance* (Fig 15)—It is here more absolutely essential than anywhere else to replace all scars by healthy skin, so as to leave no cicatricial tissue over the seat of operation At a suitable period after this has been done the bone is exposed by a long curved flap Two aluminium templates are used to measure the graft and the bed in which it is to lie These measure 6 by ½ inch and 6⅛ by 9/16 inch respectively, *the longer and wider one being* used as a guide in cutting the graft, whilst the smaller is for the bed Each template is provided with four small holes for tacks, the plate being temporarily nailed in place whilst the motor saw cuts along its edges The fractured bone being exposed the periosteum is raised from an area 6¼ inches long in the middle of the anterior surface by a central longitudinal incision and cross cuts at each end, two flaps being turned aside The smaller template is fixed in position, and the bone underlying it cut out by four saw cuts The lateral saw cuts converge towards the axis of the bone, the end cuts undercut the bone, whilst all go deep enough to penetrate the marrow cavity By means of a chisel the bits of bone thus marked out are raised from the bed, and a cavity for the graft is left The graft is cut from the opposite tibia In this case the periosteum is cut by a rectangular incision ¼ inch wider and longer than the graft and turned inwards The periosteum so conserved is protected by the template nailed in position and the graft is cut If the ends have been properly undercut it will be necessary to remove a wedge shaped piece of bone at one end in order to free the graft, which is then raised by a chisel, with the template still attached The graft is then placed in its bed The width of graft and bed ought to correspond exactly, because the wider template used as a gauge for the former allows for the bed being two saw thicknesses wider than the smaller template The shape of the ends is such that the deep surface of the graft is longer than the superficial By traction on the leg the length of the bed for the graft is temporarily lengthened the graft is then hammered down into position and the two parts of the tibia are forced together so as to lock the graft in position The edges of periosteum of the bed are then sewn to those of the graft, and the skin flap is closed

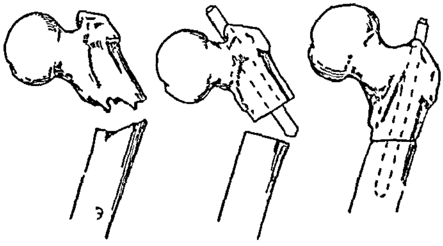
2 *The gap fracture*—If a gap of 1 or 2 inches exists in the tibia the choice will lie between shortening the fibula so as to bring the tibial fragments into contact, and filling the gap by a graft If the gap is more than 2 inches a graft is the only alternative to amputation The best type of graft to use for such a long gap is a homogenous one taken from a clean fresh amputation, if such be available The graft should be prepared, with its periosteum in place and a *projecting cuff to cover the line of junction between graft* and fragments Two projecting tongues of bone are cut at each end of the graft and fitted into corresponding slots in the fragments

The Femur

In the case of a large gap in the femur, involving more than 3 inches of shortening of the leg, it is generally wisest to advise amputation, because in such cases there is usually much concurrent injury to muscles and nerves and the leg as a whole is much atrophied Practically every ununited fracture of the femur must be joined with end to end apposition of the fragments, as it is not possible in the adult to fill up a gap with a graft sufficiently firm to take the body weight

The thrust intra medullary graft (Fig 16)—For the shaft of the femur strong round pegs ½, 7/16, and ⅜ inch thick and 6 inches long should be prepared from beef bone or ivory It is very difficult to get a solid piece of beef bone more than ½ inch thick, and I prefer ivory because of its greater strength The site of the fracture is exposed, the ends brought out into the wound, refreshed and bored by drills up to ½ inch in diameter A special long drill is run up the proximal fragment until the tip of the great trochanter is pierced A steel rod 12 inches long and ⅜ inch thick, with a pin at its lower end fitting a hole in the upper end of the peg, is passed up the proximal fragment until it can be felt through the skin of the buttock, where it is cut down upon and thrust out The peg is then fitted to the rod and driven up the femur until only ½ inch is left projecting at the site of the fracture The fragments of the fracture are adjusted and the peg is hammered down into the lower fragment until it lies equally in the two fragments It is very important that the hole drilled in the fragments should be smaller than the size of the peg (a ⅜ inch hole will suffice for a 7/16 inch peg), the rarefied inner layers of the bone readily admit of a peg being forced into a small hole, and it will then be absolutely tight If the fracture be at the upper end of the femur the peg can be inserted from the tip of the trochanter instead of being passed up the canal of the proximal fragment

FIG 16



Ununited fracture of the upper end of the femur showing insertion of peg into the upper fragment and driven down into the lower

There are two situations in which a bone graft may be used for a femoral fracture One is in the neck and the other in the shaft About the former operation it is not necessary to give details, because this has been long recognised as the best treatment for non union of the neck Only two points need be mentioned One is that the site of the fracture should always be exposed by an anterior incision such as that used for excision of the hip joint This is necessary to secure correct orientation of the fragments and proper direction for the graft, and it also enables the operator to refresh the line of fracture by the removal of interposing fibrous tissue The second is that, whether the graft be beef bone or fresh human tibia, it should be cut roughly square—a ½ inch square—and driven into a ½ inch round hole The cancellous tissue permits of this quite readily, and a firmer union results than from the use of a round peg in a round hole

Skiagrams Illustrating Different Stages of Treatment in Mr. Barrington-Ward's Case of Resection of Tibia (see opposite page).

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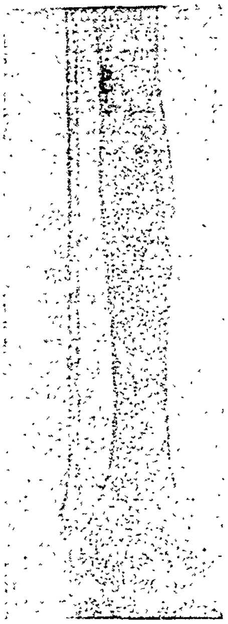

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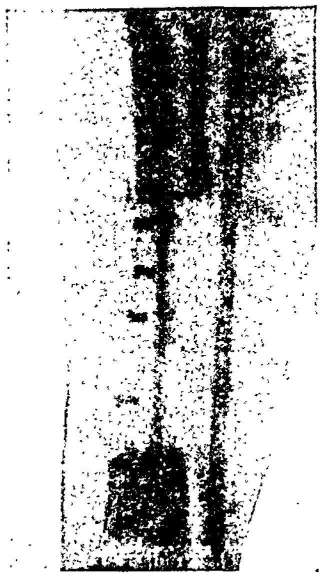

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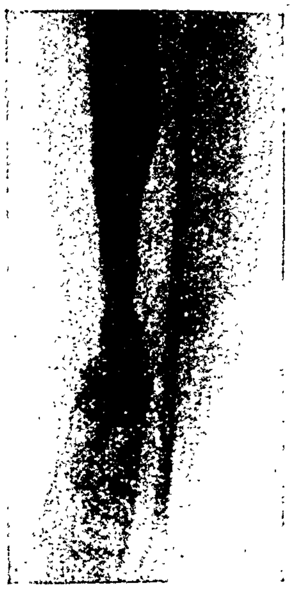

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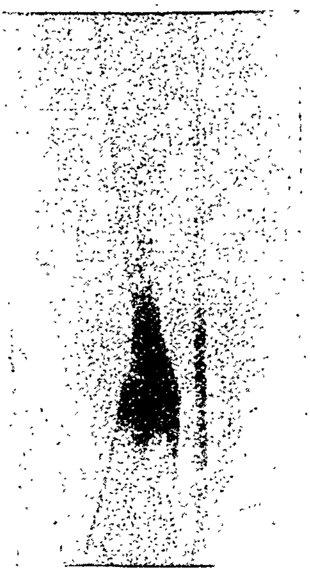

Descriptions of Illustrations.

FIG. 1.—Osteomyelitis of tibia before operation.

FIG. 2.—Diseased shaft resected; transplant in position, immediately after operation.

FIG. 3.—Growth of transplant two months after operation.

FIG. 4.—Growth of transplant five months after operation.

FIG. 5.—Fracture of graft 19 months after operation.

FIG 6.—Fracture plated.

FIG. 7.—Same fracture 3½ years later.

FIG. 8.—Photograph (Sept., 1919) 5½ years after original operation.

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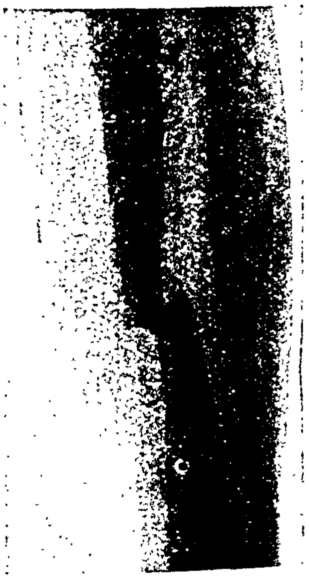

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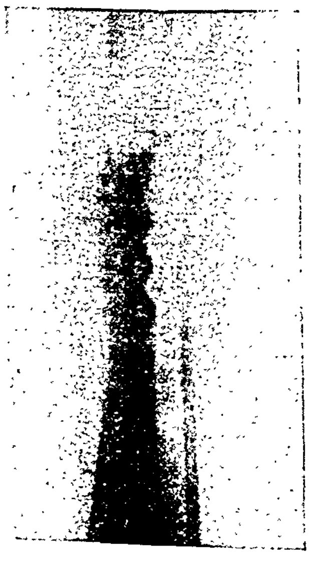

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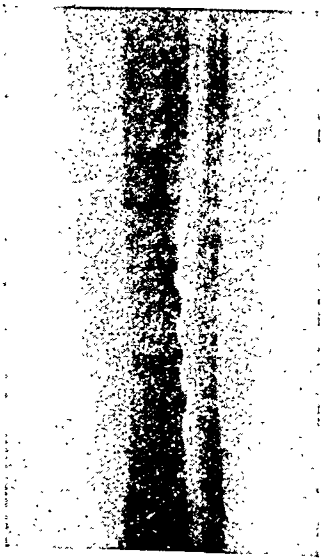

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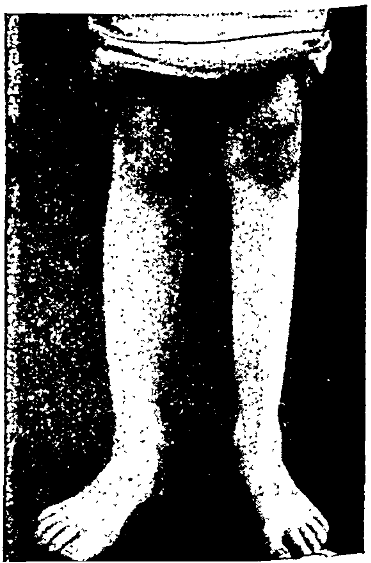

NOTES ON A CASE OF
RESECTION OF TIBIA WITH GRAFTING.
WITH PLATING OF FRACTURED GRAFT.

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IN the operative treatment of chronic osteomyelitis of a long bone two alternative lines of treatment are available. Chronic osteomyelitis is not here taken to mean the chronic condition resulting from the unsuccessful treatment of acute osteomyelitis, but quiet bone inflammation of staphylococcal, pneumococcal, or tuberculous origin. (These are, as a rule, indistinguishable clinically and radiographically, and in most cases can only be differentiated after bacteriological examination.) The oldest method is the simplest, the most generally used, and perhaps the least efficacious. An incision is made over the affected bone, the medullary cavity is opened up, diseased bone is removed by gouge and forceps until healthy limits are reached, the resulting cavity is disinfected thoroughly, the soft parts are brought together, and the wound is closed.

The second method has been most strongly advocated and developed by Stiles of Edinburgh. This is more radical, and the diseased shaft is removed entire. By appropriate splinting the limb is kept in good position, and in the course of time the diaphysis is reproduced in healthy bone.

The Method Used.

A third method is a modification and, I believe, an improvement on the simple resection. It consists in excision of the affected shaft through healthy limits and inserting a bone-graft—generally obtained from the tibia—into the gap so made. This transplant is cut to the exact length required, and is fashioned and fixed as an efficient internal splint, rendering unnecessary the subsequent use of cumbrous apparatus, and helping to some extent in the regeneration of bone. It is also possible that the fresh healthy bone cells of the graft may assist in dealing with any of the original infection —for example, of the periosteum—which has inadvertently or unavoidably been left behind.

Various grafts have been suggested—the tibia from a recently amputated leg, the fibula of the same patient. Such complications are unnecessary. A strip from the patient's healthy tibia fulfils all requirements, is easily cut with simple instruments, and has no ill-effects on the donor. It is not necessary to take periosteum with the graft. The true periosteum is a limiting membrane, and, provided the periosteal tube is left to receive the graft, the perfect shape of the bone will be reproduced. I have employed this method with complete success in treating osteomyelitis of the humerus, radius, ulna, and tibia. The following case illustrates the method in the case of the tibia, but it is recorded rather to show the behaviour of the graft under trying circumstances.

The patient, a girl aged 6, came under my care at the Hospital for Sick Children, Great Ormond-street, in March, 1914. She had a swelling of the middle third of the tibia, which had been noticed for a year. There was no history of injury. The Wassermann reaction was negative. X ray showed a dense osteitis of the shaft of the right tibia. At operation on April 2nd the sclerosed bone was opened up and an abscess cavity was found in the centre. The pus was sterile, and no tubercle bacilli could be found. The diseased bone was removed as far as possible, the cavity disinfected, and the wound closed without drainage. The wound healed satisfactorily, and progress was uninterrupted until July, 1914. A recrudescence of activity was then noticed, the bone becoming more swollen and tender. She was again admitted, and an operation was performed at a demonstration before the American Congress of Surgeons.

The original scar was excised and about 6 inches of the tibial shaft, including all the diseased bone, was resected subperiosteally. The medullary cavity at each end was reamed out and careful measurements were taken. A graft was then cut of the required length and size from the normal tibia and shaped to fit the gap exactly. Each end of the graft was rammed firmly into the reamed out medullary cavity, a shoulder being fashioned at either end to ensure correct length. The wounds were closed and the leg put in plaster. X rays from time to time showed the good progress of the transplant. It would seem that growth was taking place chiefly from the cut ends of bone along the scaffold graft. By February, 1916, the patient was walking about without a splint. In March, 1916, she fell over a railing and snapped the graft across. She was readmitted to hospital and the fracture was accurately set by open operation and plated by Lane's method. Subsequent history was uneventful. She was allowed to walk freely four months later. When last examined (September, 1919) she had a normal right leg, equal in length, size, and strength to the left, and perfect function.

Remarks.

This case illustrates some interesting points in the question of bone regeneration. The opportunity was taken when the fractured graft was plated to make a careful examination of the twenty-month-old transplant. The graft was tapered from either end and had broken at its thinnest part—the middle. It would seem that most of the growth had taken place at the ends, and that bone had grown down and up along the graft. There was no evidence yet of a medullary cavity. The texture of the bone was firm and the screws gripped well. In the growth of the transplant since the plating the plate has remained on the surface, showing that the increased thickness was not due to deposition of bone by the periosteum.

The fracture, as is usual with plated fractures, healed without external callus. The last X ray, five and a half years after the original operation, showed perfect reproduction of the shaft with restoration of the medullary cavity and no trace of graft or fracture.

A CLINICAL STUDY OF
INFECTIONS OF THE HAND.

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LITTLE has been written in English publications on this important subject, which has, however, been reviewed very completely in America by Kanavel—an author too little known in this country. This investigation has been made in order to show how the graver hand infections commence and to ascertain whether these severe lesions are preventable by early appropriate treatment. As certain facts have been observed which, though not bearing directly upon this matter, may be of interest, the paper has developed into a brief account of infections of the hand as seen in those who earn their living with their hands. Every available case, trivial or otherwise, was seen, notes were kept, and treatment was either supervised or carried out by the writer; the severer cases were admitted to beds which were under his direct observation. I should like to compare the results in this series of cases with those obtained among the nursing staff of a large institution, where cases report sick early, and consequently get early and thorough treatment.

Anatomy.

In order that the descriptions of fascial space infections may be understood the briefest possible account of the anatomy is given, as this is not well described in text-books of anatomy. Those who wish will find an extremely full account in Kanavel's "Infections of the Hand."

There are six well-defined spaces which are liable to become infected.

1. Dorsal subcutaneous. 2. Dorsal subaponeurotic. These two spaces on the dorsum of the hand and fingers are sufficiently well described by their names.

3. The middle palmar space. This lies deep to the flexor tendons and superficial to the metacarpals and interossei; it is limited on its radial side by a layer of fascia at the level of the third metacarpal bone. It is

liable to become infected from the tendon sheaths of the third, fourth, and fifth digits, or by the lymphatics, and can best be drained through an incision into the distal part of the third or fourth intermetacarpal spaces, thence by Hilton's method.

4. The thenar space. This lies between the adductores pollicis and the superficial thenar muscles, it is separated from the middle palmar space by the layer of fascia mentioned above. It is liable to become infected from the index, rarely from the middle, and still more rarely from the thumb flexor sheaths, or by lymphatic spread. It is best drained by an incision parallel and dorsal to the web in the first interosseous space; from here a pair of pressure forceps are thrust in the direction of the base of the first metacarpal bone.

5. The lumbrical spaces, of which there are four. These form a channel from the flexor profundus tendons in the palm to the radial sides of the dorsum of their respective digits. They normally convey the lumbrical muscles, but not infrequently convey pus to the dorsal part of the web. They are best drained by short deep incisions into the palmar part of the web; this incision, if necessary, may divide the web without causing disability.

6. The hypothenar space. This is superficial and of little importance.

Treatment.

The moment that the presence and site of pus has been diagnosed free drainage must be provided. Fluctuation is a late sign of suppuration as met with in the hand; it should never be waited for. The site of maximum tenderness is of far greater value in estimating the site of pus than the site of maximum swelling. Tubes, gauze strips, and strips of rubber are unsatisfactory as means of promoting drainage; they often hinder it, and, in addition, encourage sloughing of the tissues. Large incisions which gape save time in the end by giving free drainage without the introduction of foreign bodies. With free incisions the nature and the frequency of dressings matter very little. Fomentations were nearly abandoned with, it was thought, a marked improvement in results; the solitary advantage—that of relieving pain—is short-lived, and is outweighed by the many disadvantages which include cross infection, sodden hands, and, worst of all, the fact that the use of fomentations is too often the substitute for efficient drainage. It was observed that cases did not need frequent changes of dressings. A voluminous gauze dressing is much more absorbent than a wet dressing, and sometimes a case which had no attention for several days did just as well under its pus-soaked dressing as cases which had had daily dressings. This only applies to cases where drainage is really free.

Hypertonic saline baths were certainly beneficial.

Case Grouping.

The cases fall most naturally into the following groups:—

Group I.—(1) Perionychia (infections around the nail); (2) abscess in the pulp of the finger; (3) abscess on the palmar aspect of hand and fingers. These three constitute the most important primary infections.

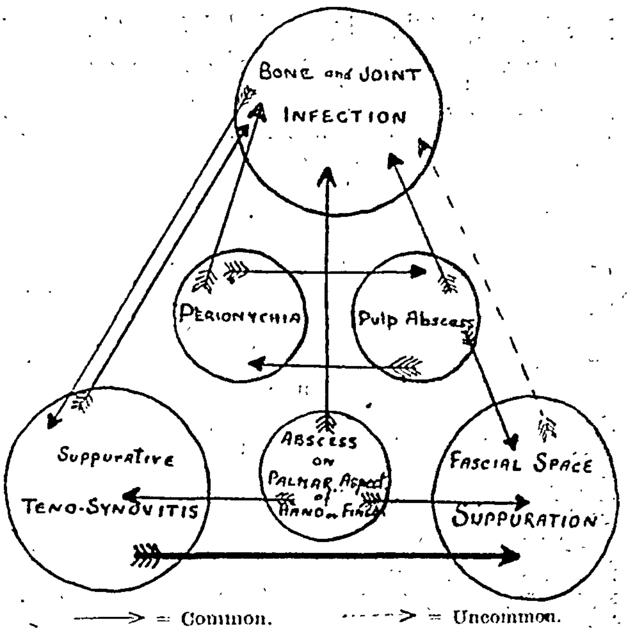
Group II.—(4) Suppurative tenosynovitis; (5) bone and joint infections; (6) fascial space abscess in palm and forearm. These constitute the most important grave secondary infections.

Group III.—(7) Abscess on the dorsum of the hand and fingers; (8) "carbuncular infections"; (9) trivial infections (chiefly subcuticular abscess); (10) lymphangitis and glandular abscess; (11) cellulitis.

The lesions in Group I., whilst remaining in that group, are relatively trivial; but they readily give rise to the Group II. infections, which are responsible for nearly all the cases of severe crippling.

The possible modes of spread are indicated by the arrows in the following diagram. Group II. infections are rarely primary; severe crushing injuries seem more prone to give rise to the cellulitis type of infection than to the clear-cut infections with which we are mainly concerned here.

Diagram showing Possible Modes of Spread.


Bone and Joint Infection
Perionychia
Pulp Abscess
Suppurative Teno-Synovitis
Abscess on Palmar Aspect of Hand or Finger
Fascial Space Suppuration
⟶ = Common.
- - - -> = Uncommon.

Perionychia.

Number of cases	30	
Average number of days disabled	7·4 days.	
Pus present when first seen	28 cases	= 93·0%
Pus under the nail	19 „	= 63·0%
Necrosis of bone	2 „	= 6·6%
Pulp abscess	5 „	= 16·6%
Tenosynovitis	0 „	= 0·0%
Source—Splinters, needle pricks, &c.... ...		43·0%
„ Uncertain (probably cracks in skin)		57·0%

Perionychia is thus not a very prolific source of grave infections—it is a possible cause of any of the three graver infections, but the chief serious complication is undoubtedly infection of the terminal phalanx.

Treatment.—Gas anæsthesia is necessary for efficient treatment. The whole nail should not be removed unless it is completely undermined by pus. In early cases, in which there is no pus under the nail, the best operation has been to make a series of about five short deep incisions radiating from the nail base. (Fig. 1.)

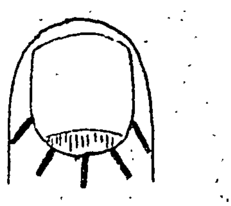


FIG. 1.—Operation for perionychia where there is no pus under the nail. Five short deep incisions radiating from the nail base.

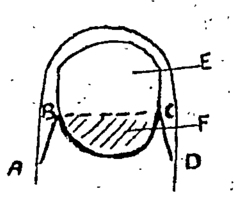


FIG. 2.—Kanavel's operation for perionychia where the nail is undermined by pus at its base. E, Portion of nail retained. F, Portion of nail removed.

In cases where the nail is undermined by pus at its base the operation described by Kanavel has given extremely satisfactory results. A flap, A, B, C, D, is dissected back, the base of the nail is divided with scissors along the line B, C, and the proximal portion is removed. The old nail, or rather its remnant, still exercises its protective function whilst the new nail is growing. (Fig. 2.) In extensive cases the whole nail must be removed, involving a longer period of disablement.

Abscess in the Pulp of the Finger.

The dense fibro-fatty tissues of the pulp have a close connexion with the periosteum of the terminal phalanx; this was attributed by Kanavel to the fact that here the glands of the skin penetrate as far as the periosteum. Infection of the terminal phalanx is the chief complication to be feared in this condition. Acute tenderness with induration of the pulp are sufficient signs of abscess, and fluctuation should not be waited for. Directions of spread: (1) To the terminal phalanx; (2) to the nail bed, (3) to the flexor sheath; (4) by lymphatic spread to the hand, forearm, arm, and axilla.

Treatment.—Incision to be efficient requires gas anæsthesia. The incision should be made at the side to avoid a scar where tactile sensation is most important and should be long enough to gape.

Number of cases	37
Average duration of disablement	11·5 days
Average duration of disablement in uncomplicated cases	6·0 ,,

Abscess on the Palmar Aspect of the Hand and Fingers

This group of cases showed what appeared to be the commonest mode of infection of the flexor synovial sheaths, and it is in this group that early thorough treatment will save many hands from becoming crippled.

Source of infection.—Superficial cuts, needle pricks, splinters, and, most common of all, infection occurring under a corn or wart. The two strikingly common sites were. (1) the "rowing blister area" in front of the heads of the metacarpals (15 cases), (2) the palmar aspect of the fingers

The first group of the above infections may spread (*a*) towards the base of the flexor synovial sheath (14 cases); (*b*) towards the lumbrical spaces (forming the "collar-button" abscess) (5 cases); (*c*) towards the middle palmar and thenar spaces (1 case).

The second group of infections may spread (*a*) towards the flexor synovial sheath; (*b*) towards the spaces on the dorsum of the finger.

Number of cases	35
Average period of incapacity	9 days

Three cases had involved but had not perforated the flexor sheath, which seems for a time to offer a barrier to the spread of infection. These cases all healed rapidly when drainage was established.

Diagnosis.—The symptom is throbbing pain. The signs may resemble very closely those of tendon sheath infection. Flexion of the finger, pain on movement, swelling of the finger, and tenderness over the sheath may all be present, and the degree to which they are elicited varies with the patient's stoicism. A good guess can usually be made, but it is only a guess, and requires to be confirmed by careful exploration.

Treatment.—These cases require general anæsthesia (gas and oxygen is ideal), a tourniquet is necessary and an Esmarch bandage is an additional convenience. Open at the site of infection, follow the pus to all its pockets, and make sure of free drainage, if necessary, divide the web completely. If swelling of the sheath or the discovery of a communication between abscess and sheath show the existence of tenosynovitis the sheath must be opened. This type of hand infection is both common and important, in one or another of its forms it is responsible for more than 50 per cent. of the cases of suppurative tenosynovitis in the present series of cases. Every stage between a simple subcutaneous abscess and one that involves tendon sheath, fascial spaces, and bones and joints will be seen if cases are carefully explored in a bloodless field. If freely drained *at an early stage the results are excellent*

Suppurative Tenosynovitis.

Number of cases	16
Cases developing the complication of fascial space abscess (thenar space, 2, middle palmar space, 2, lumbrical space, 5, dorsal spaces, 6)	8
Infection of other sheaths	4
Bone and joint infection	4
Cause	
Wound of sheath	0
Pulp abscess (2 by way of necrosis of phalanx)	4
Abscess on palmar aspect (4 of these were due to superficial wound over interphalangeal joint)	10
Undetermined	2
Bacteriology	
Streptococcus pyogenes	8
Staphylococcus aureus	6
Mixed staph and strep	1
Undetermined	1

Tenosynovitis of this type is rarely or never a primary disease. There is always a preceding infection. This primary infection has been most commonly an abscess on the palmar aspect of the hand or of a phalanx. In 4 of the cases a superficial wound over one of the flexion creases led to infection of the sheath.

Pulp abscess is also a common cause, which may act in two ways: 1. Direct infection of the terminal portion of the sheath. 2 Infection of the phalanx and from this infection of the sheath (2 cases).

Perionychia did not cause any case of tenosynovitis in this series of cases, but since it may be the cause of either bone infection or pulp abscess it must be reckoned as a possible cause.

The outstanding *complication of tendon-sheath infection* is undoubtedly fascial space abscess, with which must be included direct spread into the forearm under the anterior annular ligament. This latter occurs in two ways: 1. Empyema of the synovial sac, which surrounds the flexor tendons in the palm, this sac consists of two divisions, an ulnar bursa communicating generally with the fifth flexor sheath and a radial bursa, or the sheath of the flexor longus pollicis 2. Middle palmar space abscess extending deep to the synovial sheath into the forearm The first of these usually ruptures at the upper end of the bursa and so infects *the same space in the forearm as the second.* Abscess in the forearm occurred in three cases.

Diagnosis.—The physical signs upon which a diagnosis of sheath suppuration is made are: (1) the general condition of the patient; (2) the combination of swelling and flexion of the whole digit; (3) pain on movement, particularly on extension; (4) exquisite tenderness over the sheath; (5) most important of all, a careful exploration of the site of infection.

Treatment.—General anæsthetic and tourniquet Open at the site of infection, this allows of the differentiation from palmar subcutaneous abscess in all cases The question of the amount to which the sheath should be opened is still one for discussion The two chief views are: 1. Open the sheath in its full length This is what has been done in the majority of cases in this series Drainage is as free as possible and the tendon does not necessarily slough 2 Open the sheath laterally over the phalanges, leaving the portions over the joints. This certainly prevents prolapse of the tendon, but this undesirable event can also be prevented by splinting the finger in extension When the tendon has a dull yellow appearance it will surely slough, much time can then be saved by excising it If the tendon is merely cut off the infected upper end will retract into the palm and will there cause a secondary abscess, a better plan is to fix both tendons to the periosteum of the proximal phalanx by a stitch which holds until protective adhesions are formed

It is most important to move all the fingers daily during the after treatment.

One observation is *of some interest* in this connexion There appears to be a type of low grade infection which, when one sheath is involved in an acute suppuration, occurs in other sheaths, pus is not formed but adhesions *develop which limit* the movements of the other fingers This was well shown in a dissection of the amputated limb in one case. On clinical grounds the presence of pus in two sheaths had been suspected. The patient's general condition demanded amputation. On dissecting the fresh specimen many recent adhesions but no pus were found The same clinical suspicion has arisen in other cases, but no opportunity for verification has arisen The limitation of movement remains as evidence that adhesions had occurred

Bone and Joint Infection

This condition must be distinguished from osteomyelitis of the bones in the hand, which is part of a staphylococcal septico pyæmia The bone infection referred to here appears to run a different clinical course, abscesses of a metastatic nature have not been met with, the condition is not confined to young subjects, it is always the result of direct extension of the inflammatory process.

Number of cases 17

Cause.

Pulp abscess	8	Perionychia	4
Tenosynovitis	4	Undetermined	1

Tenosynovitis was responsible for the cases which involved the proximal phalanges and joints.

Treatment is unsatisfactory; in the majority of cases necrosis of the whole, or nearly the whole, phalanx occurs, and the fact that 5 out of 17 cases were eventually amputated shows that the condition is one which leads to severe and crippling deformity. Very early cases which have a subperiosteal abscess may clear up without necrosis of bone if freely incised at once. This condition—primary subperiosteal abscess—was met with in one case only. The large majority of bone infections are secondary to an infection which is at first easily treated, but which, if neglected, leads to inevitable deformity.

Abscess on the Dorsum of the Hand and Fingers; Fascial Space Abscess in the Hand and Forearm.

Abscess on the dorsum occurred: (1) as a complication of tendon-sheath or bone infection; (2) as a result of a wound on the dorsum of the hand. Infections on the dorsum extend to the lymphatics and glands more often than do the palmar infections. On the other hand, it is the palmar infections which cause great local damage. Dorsal infections cause severe disability only when they result in spreading cellulitis. The treatment is free incision.

Fascial space abscesses.—(A) Middle palmar space: This space was infected in two cases, both from a tenosynovitis of the middle finger, and both spread deep to the flexor tendons into the forearm.

Diagnosis.—The sign described by Kanavel, which consists of swelling of the whole hand as compared with its fellow, is not sufficiently sharply defined to make for early diagnosis. It is better to depend on careful exploration of the site of infection. If, for example, during an operation for tenosynovitis of the middle finger pus is observed to be tracking deep to the tendons on the ulnar side of the hand, this opening must be enlarged and the middle palmar space freely drained. The habit of making every operation for an infected hand partake of the nature of an exploratory dissection is one which makes accurate diagnosis available for every case.

(B) Thenar space: This space was infected in four cases: (*a*) index tenosynovitis; (*b*) flexor longus pollicis tenosynovitis; (*c*) middle-finger tenosynovitis; (*d*) spread from a pulp abscess of the thumb, possibly by the lymphatics.

Diagnosis.—The sign described by Kanavel, which he calls "ballooning of the thenar eminence," is very characteristic of the condition seen.

(C) *Lumbrical spaces.*—These became infected in two ways: (*a*) as a complication of tendon-sheath suppuration; (*b*) as an extension from an abscess under the horny skin of the palm. Abscesses in this situation spread to the dorsum of the web and usually healed readily on being freely drained in the manner previously indicated.

(D) *Abscess in the forearm.*—This can arise in two ways: (*a*) by rupture of a palmar bursa suppuration (first or fifth finger tenosynovitis at the upper end, above the annular ligament); (*b*) by spread of a middle palmar space abscess deep to the flexor tendons. In each case the same space in the forearm is affected, a space limited above by the attachment of the flexor profundus digitorum to the ulna. The abscess points at the ulnar side of the forearm about its middle, and it is here that it should be opened.

Fascial space abscess is later in its ætiology than its two companions in Group II. It is to be regarded rather as a complication of tendon-sheath suppuration than as a complication of the three early conditions in Group I.

Carbuncular and Trivial Infections; Lymphangitis and Glandular Abscess.

Carbuncular infections occurred only on the dorsum of the hand or fingers where hair follicles were present. They appeared to do as well when treated by fomentations and a stock staphylococcal vaccine as they did when incised. Excision left a wound which took long to heal.

There were 28 cases of trivial infections, of which 26 were subcuticular abscesses. No anæsthetic was required unless a deeper infection was present as well. The covering dead cuticle should be entirely removed; if this is done healing should not occupy more than a few days.

Lymphangitis and glandular abscesses were far more common where the primary focus was situated on the dorsum of the hand or fingers. Cases of lymphangitis generally resolve when the primary focus is treated, and the same is true of enlarged glands; but when there is is evidence of suppuration adequate incision must be made.

The established treatment of cellulitis by multiple incisions is not altogether satisfactory. In cases where pus is evacuated by this means the results are good, but it is in the severe cases where only brawny œdematous areas are exposed that the results of incision are least satisfactory. It seems to be better treatment to place the part at rest and apply fomentations until it localises into one or more abscesses, which are then opened in the most dependent position.

Conclusions.

The analysis of the 168 cases which form the basis of this paper shows that hand infections as seen in working men and women are too frequently the cause of grave disability. It was very unusual for a case to develop a severe infection if it had been first seen whilst it was in the Group I. stage.

Part of the blame must be attributed to the prevalent impression in the minds of the lay public—and it is to be feared in the minds of some members of the medical profession—that a "whitlow" is a suitable object for treatment with poultices, ink, ointment—in fact, anything but free drainage. The time to treat these conditions efficiently is in their early stages. When tendon sheaths, &c., have become infected the hope of a useful finger is a thing of the past; the object of treatment then becomes to save whole hands, forearms, and even lives.

The outlook of the public and the profession towards hands is much the same as it was towards the appendix 20 years ago. If localised tenderness became the danger-signal in the hand, as it has become in the abdomen, and if suppuration in the hand, however small the area involved, were regarded as an indication for immediate operation the morbidity of infected hands would fall in much the same way as the mortality of infected appendices has fallen.

Several factors combine to retard progress in this form of industrial disease. Not least amongst these is the fact that the public and the politician are each obsessed with the idea that all diseases can be treated with something out of a bottle. So we have elaborate schemes of State insurance, which do not consider the fact that the general practitioner can have neither the time nor the facilities, such as anæsthetics, for treating many of these cases.

I wish to thank the surgeons to out-patients of the London Hospital for permission to see and make use of their cases, and particularly Mr. A. J. Walton for valued suggestions and advice.

It would be impossible to write on infected hands without trespassing on Kanavel's work; my excuse for having done so is that his book is only obtainable from America. In two items only can I make any claim to originality: (1) The view of palmar abscess as the commonest cause of tenosynovitis; (2) the method of securing the proximal end of the tendon to the proximal phalanx before excising it.

DUBLIN UNIVERSITY BIOLOGICAL ASSOCIATION: ANNUAL DINNER.—The annual dinner of the Dublin University Biological Association—in suspense since 1914—was held last week in the Gresham Hotel under the presidency of Dr. Bethel Solomons. Over 100 members attended, and a very pleasant evening was passed. The principal guests present were the President of the Royal College of Physicians, Major-General J. J. Gerrard, and Sir John Lumsden.

SPECIFICITY AND EVOLUTION IN DISEASE

A HISTORICAL RETROSPECT.

BY SIR WILLIAM JOB COLLINS, K C.V.O , M.S ,
M D , B SC LOND , F.R C S ENG.

THE LANCET of May 14th, 1881, published a letter in which I ventured to inquire "how far our commonly accepted notions of specificity of diseases should be modified by the doctrine of evolution " I then said.—

> "This *doctrine, which has so rapidly and entirely altered the face of the organic world,* as we conceive it has as yet made but a feeble impression, if any, on medical science and pathology The importance of the principle of specificity in disease has been clearly and generally recognised since the time of Laennec and Bretonneau Trousseau in one of his clinics devoted to the subject, remarks of specificity Elle domine toute la pathologie, toute la thérapeutique, en un mot toute la médecine and the same belief, tacit or avowed would seem to pervade all modern medical literature '

I then went on to show that the argument upon which medical writers based their theory of specificity of disease was an appeal to the analogy alleged to exist between the natural history of diseases and the natural history of animals and plants, and that until that time no better argument had been possible I then inquired whether—

> "Since, as regards the organic world, we have come to speak of an origin of species, and learnt to trace their differentiation under the influence of evolution to the eventual survival of the fittest, *should not our views concerning specificity of diseases* undergo a similar *modification? Is not the theory of specificity* swallowed up in the larger theory of evolution? Starting from a non specific inflammation or fever, may there not arise therefrom under favourable conditions an inflammation or a fever different from the parent stock and capable of reproducing itself? I think so, ' and the letter concluded, "The common ancestry of specific diseases, once recognised, would do much to remove the hard and fast line so often drawn between disease and disease in text books and dissertations, but of which nature knows nothing '

On Feb 28th, 1884, I developed the thesis more fully in an address delivered at the Abernethian Society of St. Bartholomew's Hospital. This address was subsequently published by Messrs. H. K. Lewis, and was entitled, "Specificity and Evolution in Disease." Mr. Herbert Spencer was so good as to accept its dedication to himself, and wrote that "its conception is thoroughly philosophical and promises to open the way to a considerable reform in pathology." In this essay an attempt was made to show how pathology had been hitherto uninfluenced by evolution; the creed and canons of specificity were examined, and damaging admissions cited; the specificising influence of soil and predisposition were dwelt on, and the de novo origin of disease, variation, hybrids, and nondescripts discussed; the germ theory was viewed in the light of evolution, and certain objections on behalf of bacteriological pan spermists were rebutted. The argument was thus summarised:—

> "Starting from *common ancestral conditions*, we arrive at *specific diversities*, and that the chief, if not the only, element in determining specificity is the *nature of the soil*, in which the poison (whatever be its nature) grows, that is to say the *predisposition of the individual* That the predisposition varies with the departure from a state of health, local or constitutional, but that just as in some cases so great is the virulence of the poison *as the result of cultivation on suitable soil*, that it may even overstep the usually sufficient barriers of health and attack the unpredisposed so, on the other hand, predisposing and exciting causes being as it were, complementary, predisposition may be so strong that, apart from contagion, it may develop disease *de novo* Such disease, however, as with *nascent species* generally, being more plastic, *less fixed* than the *more cultured* variety, *and often appearing in aberrant form* "

The same principle, it was suggested, might be applied to local inflammations.

> "The evolution of specific local lesions from the different stages of a common or simple inflammation, as, for instance, the various classes of skin diseases, erythemata, papulæ, vesiculæ, pustulæ, and squamæ, from the stages of redness, pimple, blister, pock, and scab of inflammation, and likewise the ætiology of carcinoma, sarcoma, and the specific lesions of syphilis &c, from ancestral common types ' *The essay closed on a* therapeutic or hygienic note claiming that ' filthy *conditions and the imperfect removal of effete material,* without and within the body, are the *factors of* zymotic pestilence, which aforetime walked in darkness, but is now made plain by the revealing light of science And just as the evolution theory of disease asserts the origin of disease so does it foresee the possibility of its abolition, at any rate so far as zymotics are concerned, while *it was an integral part of the old specific theory to affirm that* disease was from everlasting to everlasting, as it was in the beginning it is now and ever shall be, and that salvation could only be purchased by the propitiating influence of a previous attack

This was in harmony with the plea for "extended sanitation, for the means of fighting diseases outside our bodies and not within them, for making our hygiene so good that prophylactics and antiseptics shall be superfluous," which I had argued in THE LANCET of Nov. 16th, 1880

My innocent enthusiasm for evolutionary pathology as a corrective of the rigid doctrine of specificity, however, came under severe censure from the reviewers. The *London Medical Record* (August 15th, 1884) declared —

> Such teaching runs counter to all the best work of modern times, which has carefully distinguished many of these forms of disease from one another or from others with which they were confounded

The *Medical Press* (May 14th, 1884) accused me of—

> "essaying with all the vigour of youth to demolish the theories of specific disease which have sufficed to satisfy the acutest physicians of this and every age and discovered in the essay a ' proneness to jump over those *terrible* gaps *which* everywhere occur to separate the known *from* the unknown

While saying many kind things, which I forbear to quote, the reviewer regrets to find—

> ' evidence of generalisations which when the author has reached the experience of the authorities whose opinion he condemns, he will be less eager to adopt '

Impenitent and unabashed by this orthodox rebuke from pontifical seniority, I again raised the question of "specificity and evolution in disease" at a conference of medical officers of health held in the Guildhall, Worcester, on Sept 26th, 1889.[1] Wallace's "Darwinism" had just been published, and alluding to it I remarked —

> "It has been the work of Charles Darwin and of Alfred Russell Wallace to alter the face of organic nature as we conceive it and to give us truer and finer conceptions alike in ontology and biology *It is the object of this paper to inquire as I inquired eight years ago, Has the science of medicine,* as we are *pleased to term it,* reaped the full benefit of these new conceptions? A small and increasing number of philosophic pathologists has doubtless essayed to bring the quickening influence of evolution to bear upon the dry facts which for centuries have been accumulated with such an infinity of labour and prolixity and such a modicum of insight and synthetic thought We have but to take up any *ordinary text-book of medicine to find that such underlying* scientific conceptions as it may happen to include are but a dim *reflex of the fossilised* biological *notions* which did duty *before* Darwin's day The old, absolute, unalterable and eternal specificity theory is there in all its crude inconceivability and its theological attire '

The alternative evolutionary thesis was then re stated, the predominant position of the germ hypothesis as affording an obstacle to the acceptance thereof, and the basis of orthodox criticism of evolutionary pathology were examined.

> "Micro-organisms, it was contended, "have come to be regarded too much in the light of their relation *to diseases of* man and *too little in the light of their own life-history the old* notion *of a specific organism or entity* as the *vera causa* of disease *commends itself to acceptance if* only on the score of its simplicity and easy comprehensibility The *raison d'être* of fission fungi in the minds of some pan-spermists would appear to be the infliction on mortals of exanthematic disease, for such purpose they hold they are and were created Whereas I apprehend the truer view to be that it is just *so far as living* tissues under certain conditions afford *suitable soil for their growth and multiplication* that there is *any relationship* between the two, and it is *only by the results of* their presence and growth, facilitated by the *means of* absorption and distribution which the mechanism of the living body provides that they come to be really pathogenic In cases where a micro-organism is habitually present it may be *questioned* whether its pathogenic *modus operandi* may not be merely to facilitate a chemical change which *may* be effected without it as we know may *occur in normal digestive processes* '

It was submitted that the facts related

> "do not warrant our *insisting* that the acceptance within limits *of* the *bacterial* hypothesis *for* certain diseases implies a strict acquiescence in the truth of a rigid specificity the dissemination of fission fungi may be rather epiphenomenal than of the nature of a predestinated cause Again, since what may stand as a specific series of morbid phenomena may be determined by a chemical poison in which the bacilli which produced it are conspicuous *by their absence how far is their* presence to be held a *proximate* cause in disease production? Lastly, *inasmuch as soil may operate* to the extent of nullification *of the action of a bacillus* which is uniformly fatal to another variety of the same species of animal how great is the importance to be attributed to it as a factor in the propagation and modification of disease' It is impossible at the present time to go further than to allow that the influence which makes for disease is in some instances associated with the growth *of fission fungi in the body*.

> How vast and incomprehensible may be the potentiality vested in a minute morphological unit we know in the phenomena which follow the inter-action of ovum and spermatozoon; of the intimate nature of contagion we know but little more. Yet if it be true that in the life-history of the lowest of organic things lie the momentous influences which determine plagues and pestilences, it is reasonable to believe that in organisms whose cycle may be less than an hour, and whose rate of propagation is incalculable, evolution must be powerfully at work eventuating in the survival of those most fitted to their environment, and that in this as in other directions man's influence may modify natural selection, and by acting in accordance with law learn to conquer nature by submitting to her."

In the debate which followed Mr. Blyth, Dr. Bond, and Dr. Sykes had very complimentary things to say; the first-named, however, thought "the subject could be more profitably discussed in some 20 years hence than at the present time," the last-named remarked that "if Dr. Collins had done nothing more than to teach them they must not lay down any hard-and-fast rules he had done some good," while Dr. Bond dwelt on the "plasticity of the germ," and added that:

> "The general result of his observations had been to lead him so strongly in the direction of what Dr. Collins had shadowed forth that he felt he had travelled altogether from the original ideas as to specificity which he entertained when he first undertook the work of a medical officer."

Dr. (now Sir Arthur) Newsholme wrote to *Public Health*[2] saying he had—

> "read with great interest Dr. Collins's paper. It is an able exposition of the evolutionary view of the origin of febrile disease from an ancestral amœboid common fever, and puts in a lucid manner the arguments favouring this theory." Nevertheless, he added: "Carefully conducted and elaborate experiments in the bacteriological laboratory, made by quite a small army of observers, tend to throw great doubt on the present transition of any one known species of bacteria into any other. ...... It must be confessed that however much one may be theoretically inclined to agree with Dr. Collins's evolutionary views respecting infectious diseases, and in spite of the fact that he has presented his case in a very masterly fashion, the evidence hitherto available negatives the view that modification of form occurs, and leads one to think that it is chiefly and to all appearances solely a question of modification of soil."

At intervals during the 30 or 40 years which have elapsed since I first hazarded views that gave rise to such diversity of opinion I have, in the intervals of other activities, returned from time to time to this fascinating theme. Among such re-statements of the case were addresses at King's College, Feb. 14th, 1896, entitled, "Pasteur Notwithstanding"; at the Sanitary Institute Congress at Manchester, in 1902, in "the popular lecture" entitled, "The Man versus the Microbe[3]; in a lecture to the Abernethian Society on "Physic and Metaphysic," Feb. 16th, 1905[4]; in the presidential introduction to the Section of Preventive Medicine at the Sanitary Congress at Bristol in 1906[5]; in an oration to the Reading Medical Society in 1909 on "The Tithing of Mint and Anise"; and in the lecture to the Congress of the Sanitary Institute at Exeter in 1913 entitled, "The Chadwick School of Thought, an appeal from the New Sanitarians to the Old."[6] I therein urged that accumulating evidence strengthened rather than weakened the original claims made on behalf of evolutionary pathology. In 1888 and 1904 letters entitled, "In What Does Cancer Consist"[7] and "Herbert Spencer and Evolutionary Pathology"[8] collateral topics were dealt with. Confirmation of the views which were accounted so preposterous and heretical by the early reviewers, sometimes unacknowledged[9] and sometimes acknowledged, has been abundantly forthcoming during the generation which has since elapsed. Thus Dr. T. W. Thompson, writing on "The Natural History of Infectious Diseases,"[10] referred to my essays of 1884 and 1889 and asserted that—

> "Evolution in connexion with epidemic diseases, or more strictly their causes, is day by day forcing itself more prominently upon our consideration."

Dr. K. W. Millican, an early worker in the same field, wrote on "The Evolution of Morbid Germs."[11] Dr. (now Sir George) Newman, in 1904, in his work on Bacteriology,[12] spoke of the tendency to overrate altogether the potentiality of the bacillus apart from its medium, and of "the enormous part played by the medium or soil in which the micro-organism is growing." In sending me a copy of his book he said—

> "I have tried to learn the lesson you used to emphasise—the relativity of bacteriology and its tentativeness. I have also used your ideas of seed and soil in Chapter I."

Dr. J. T. C. Nash, medical officer for the county of Norfolk and formerly of Southend, has from 1901 onwards emphasised and illustrated with great cogency "the part played by evolutionary forces in disease processes."[13] Dr. W. H. Hamer, medical officer to the London County Council, in his Milroy Lectures before the Royal College of Physicians of London, in 1906,[14] as well as in his brilliant annual reports, dwells on "the paramount importance of soil" upon specificity, and cites with approval my observation that "the possibilities of environment are not exhausted by the confectionery of the laboratory." In 1902 Dr. Howship Dickinson[15] and Dr. Stephen Mackenzie,[16] in addresses at St. George's Hospital and at the Medical Society, stressed the importance of paying more attention to the soil than to the seed in diseases attributed to microbic causes. In a critical annotation in the *Universal Medical Record* on "The Pathogenicity and Virulence of Bacteria,"[17] reference is made to the researches of Dr. F. H. Thiele and Dr. D. Embleton,[18] which it was alleged, if substantially confirmed, would cause the whole of the enormous superstructure that has been reared on the basis of the conventional bacteriology of the last 20 years or so to go by the board. The writer continues:—

> "Views, although supported by clinical observation, which have been held heterodox, may now be brought out into the light of the day, and the importance of the man in respect of the microbe may perhaps be freely acknowledged."

and the Manchester address on "The Man versus the Microbe" of 1912 is cited in support of this contention. Sir Malcolm Morris,[19] in his introductory volume to Cassell's series of Public Health Manuals, says:—

> "In the early days of bacteriology some sanitarians were slow to appreciate the rôle of pathogenic organisms. More recently the pendulum has sometimes swung too far to the other side, and Sir William Collins is not without justification for the epigrammatic warnings he has administered from time to time against the danger of underrating 'the potency of filth and removable conditions as factors in disease production and propagation.'"

In 1918 Professor J. G. Adami[20] published his "Medical Contributions to the Study of Evolution," recording views he had arrived at in orderly sequence from the year 1891, and maintained that—

> "In studying these uni-cellular a-sexual bacteria, we investigate the simplest and most fundamental principles of heredity and evolution, and the influence of environment becomes most evident," and "that to a variability which may impress itself upon a greater or less number of generations is to be ascribed, in part, the differences between successive epidemics, between the successive stages of one epidemic, and between individual cases of disease."

Last year Dr. Gurney Dixon[21] published a work entitled "The Transmutation of Bacteria," and, after a full review of recent literature on the subject, concludes that—

> "There is no reason to doubt and abundant evidence to support the opinion that in this field of life, as in others, the forces of natural selection and the survival of the fittest have been at work and have resulted, in the course of ages, in the evolution and differentiation of the various types of bacteria which we recognise and distinguish to-day," and again, "it is reasonable to expect that amongst the bacteria natural variation would occur with greater frequency than amongst higher forms of life. . . . Such variations would be more readily noted in their case since as many as 30 or 40 successive generations may be observed in the course of 24 hours."

The author points out that—

> "No single property of bacteria can be regarded as specific," and that the pathogenesis attributed to an organism may be dissociated from it; again he says: "Species of bacteria have developed from a common stock. In the case of some of them the differentiation dates from a remote past and the specific characters are comparatively fixed. In the case of others differentiation is of more recent date, and the newly-acquired characters are less permanent and 'reversion' in one or other character is more frequent."

Dr. F. G. Crookshank,[22] who in earlier writings as well as in his Chadwick lectures had shown a scholarly and philosophic method of investigation into the fundamentals of pathology, was able to read, without other than appreciative criticism, to the Section of Epidemiology of the Royal Society of Medicine on Jan. 23rd, 1920, a paper on "First Principles: and Epidemiology," which was instinct with the doctrine of evolutionary pathology. Fortified with illustrations drawn alike from the laboratory and the library, he challenged physic to listen to metaphysic and to condescend to define its terms and prove its propositions. He asserts that

"The attempt at recognition of epidemiological *principles* seems, indeed, during the nineteenth century, to have been almost abandoned Statistics and field-observations are matters of *method, not of principle*, and for the rest, the *cathedra* of the professed epidemiologists seems to have wobbled uncertainly on two legs one the dogma that specific diseases were real things to be found in the post mortem room' the other that epidemics were to be abolished by sanitation Both beliefs were bred by *a posteriori* methods out of Victorian realism Within our own memory an attempt has been made to secure equilibrium by the insertion of a third support that of systematic bacteriology Almost alone, Sir William Collins some years ago raised his voice against the positivist doctrines of specificity in disease, and the excessive claims of the bacteriologists Now that the inflated claims put forward in some quarters have collapsed his papers may be studied anew

May I, having now briefly reviewed my reviewers, with due submission, repeat the question I propounded 40 years ago in your columns "Is not the theory of specificity of disease swallowed up in the larger theory of evolution?"

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A CASE OF

GASTRO-COLIC FISTULA

BY DOUGLAS FIRTH, M D. CANTAB, F.R C P LOND,
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AMONGST the rarer complications of gastric ulcer is numbered gastro colic fistula, and whilst it is recorded in most text books of medicine, no mention is made of the possible means of diagnosis. This is to be regretted, for though gastro colic fistula is undoubtedly rare, it should prove easy to diagnose.

Fistulæ between the upper and lower part of the alimentary canal in the abdominal cavity fall into two groups · the one in which the fistula arises spontaneously, the other in which it follows the operation of gastro enterostomy, and is more frequently jejuno colic than gastro colic Of this latter variety Dr. Charles Bolton has had a comparatively large experience, no fewer than 31 cases, and, as he pointed out at a recent meeting of the Royal Society of Medicine, when the communication between the stomach and colon is indirect—that is, via the jejunum—the diagnosis may be extremely difficult In all his cases, however, a history of operation for gastric ulcer was present, which to those cognisant of the possibility of an intestinal fistula, serves as a valuable clue to originate an investigation to elucidate the condition. In the case here recorded a correct diagnosis was not made The past history was indefinite, the patient had undergone no operation, and two of the most characteristic symptoms, diarrhœa and vomiting, subsided on admission to hospital, so that no opportunity occurred to investigate their nature. Nevertheless, such features as the case presented should have raised suspicions, and these once aroused, it would have been easy to prove or disprove the presence of a gastro colic fistula.

The patient, a male aged 51 years, was admitted to hospital for diarrhœa and vomiting at irregular intervals, pain in the chest, and a "swollen stomach" The attacks of diarrhœa and vomiting had commenced in February, 1919 and usually were in evidence together, but sometimes when vomiting was present alone the onset of diarrhœa stopped it The length of the bouts varied much, and they were not accompanied by pain. Wasting had commenced at about the same date, the fall in weight being from about 11½ st to 9 st 6 lb on admission to hospital The pain in the chest was not particularly severe, and was stated to be at a maximum before food and to be relieved by a meal "Flatulence" had been a marked feature, and the peculiarly *offensive character of the eructations* was noted in the out *patient department before admission There was no history of hæmatemesis, melæna, or anything suggestive of gastric* ulcer, and with the *exception of an attack of jaundice at the* age of 23, the patient alleged that he had been *a healthy man* until the onset of the present illness

On admission the patient was emaciated, with a sallow complexion, offensive breath, and dirty tongue The abdomen was full, contrasting markedly with the wasted condition of the man, but there was no tenderness on palpation and no mass or other abnormality could be detected All the other systems were normal On the fifth day after admission slight but definite ladder pattern peristalsis was seen on examining the abdomen, and on the following day a brief attack of vomiting occurred, during which no peculiarity in the vomit was noted The bowels throughout acted regularly without an aperient

A week after admission an exploratory laparotomy was performed, at which distension of some of the loops of the small intestine was found, and a large adhesion stretching from the cæcum to the omentum, was divided Following the operation the patient gradually sank, dying 14 days after without apparent cause, *there had been no return of the diarrhœa and sickness, although the abdominal distension continued in spite of the regular action of the* bowels

Post mortem the stomach was thick walled, contained some fæcal material, and the mucous membrane showed chronic gastritis On the lesser curvature of the stomach 3 inches from the œsophageal opening, was an old chronic ulcer, which had perforated into the transverse colon, forming a large gastro colic fistula, which would admit three fingers There was perfect firm union between the edges of the stomach and colon, which was not adherent to the stomach except at this point

Remarks

A consideration of the case and of the post mortem *finding suggests that a combination of some of the following symptoms should arouse a suspicion of the* existence of a gastro colic fistula —

1 Wasting, of some duration and for which no obvious cause is present
2 Abdominal pain or discomfort of a vague type
3 Abdominal distension. This probably results from fermentation due to the regurgitation of fæcal matter into the stomach, leading to a chronic gastro enteritis
4 Offensive or fæcal smelling eructations
5 Intermittent diarrhœa, *during which the examination of the dejecta may show the presence of undigested food*
6 *Vomiting of fæcal material at intervals, without evidence of intestinal obstruction*

Confirmation of the diagnosis may be obtained by—

7 A loss of fluid on gastric lavage, a similar phenomenon to that seen in some cases of hour glass stomach
8 Recovery of material demonstrably fæcal by lavage
9 The rapid appearance of a coloured meal in the stools, charcoal would answer the purpose excellently
10 The recovery, from the stomach, of colouring matter administered as a rectal enema
11 A bismuth meal In jejuno colic fistula, the picture presented by an X ray examination may be confusing, owing to the numerous routes open for the bismuth to travel, but where the fistula is solely *gastro-colic, the findings should* be much more definite

The existence of a gastro colic fistula should also be suspected if there is a history pointing to or suggesting a previous gastric ulcer, although such a history, as this case shows, is not invariable.

THE Bristol County Sports Club has collected £1000 as a Thanksgiving War Memorial Fund to endow a bed at the Bristol General Hospital The balance will be given to the Bristol Royal Infirmary

A MEDICAL CENTENARIAN.—Dr. James Scarth Spence Logie, of Kirkwall, Orkney, celebrated his centenary on May 11th. A member of a family well known in Orkney for three generations, he qualified L R C S Edin in 1841 and M.D. Edin in the following year, and was for long the leading physician in the islands

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

CONJOINT MEETING OF SECTION OF OBSTETRICS AND GYNÆCOLOGY WITH NORTH OF ENGLAND AND MIDLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETIES.

A CONJOINT meeting of the Section of Obstetrics and Gynæcology with the North of England and Midland Obstetrical and Gynæcological Societies was held on May 6th.

MORNING SESSION.

Dr. J. E. GEMMELL (Liverpool) presided.

Dr. E. HASTINGS TWEEDY opened a discussion on

The Treatment of Ante-partum Hæmorrhage.

He said that comparison of results in accidental hæmorrhage was difficult because in the compilation of different statistics different standards were adopted. The classification as accidental hæmorrhage of all antepartum hæmorrhages other than those arising from placenta prævia was a mistake commonly made by nurses and students. Of still greater importance was the determination of the amount of loss which brought the condition within the category of accidental hæmorrhage. In the Rotunda Hospital the term was not now used unless the bleeding was sufficient to necessitate calling an assistant master to make a diagnosis and to be responsible for the woman's delivery. He was not summoned unless his presence was required in the interest of the patient, and in this way many insignificant bleedings escaped the records. Thus during his mastership of the Rotunda Dr. Tweedy reported only 49 cases of accidental and 45 of unavoidable hæmorrhage in 13,924 deliveries, and in the extern maternity 47 in 15,543 deliveries. On the other hand, Sir William Smyly, adopting a different standard, in his first hospital report on 3600 deliveries, recorded 44 cases, of which he wrote, "Most of them were of little consequence." Similarly, at St. Mary's Hospital, Manchester, 105 cases of accidental hæmorrhage were encountered in the two years 1913-14; 83 of these recovered under the measures applicable for the condition in its less severe form (rupture of membranes, and so forth). Seven died in spite of this treatment and 15 were dealt with by more radical procedures. From these figures Dr. Tweedy inferred that there were certainly 22 serious hæmorrhages, but that the remainder could probably be classed with most of Sir William Smyly's cases as "of little consequence." Amongst Dr. Tweedy's 49 patients 22 were in serious danger and were treated by the vaginal plug. He lost 2 hospital and 7 extern maternity patients, in 5 of whom the plug was employed. His two hospital deaths probably arose from intraperitoneal hæmorrhage, for in one not more than a pint and a half of blood poured into the uterus, whilst in the other the patient's condition improved whilst the plug was in, and the patient died only after completion of the third stage three hours after. From 1913 to 1918, during which time Dr. Tweedy was back at the Rotunda, 23 cases of accidental hæmorrhage were encountered. The possibility of accidental hæmorrhage arising as a result of pregnancy toxæmias had by then been established and led to the performance of Cæsarean section when the double complication was encountered in a severe form. The procedure was carried out three times with success. Intra-abdominal blood was observed in all three cases, and in one the ovarian artery beneath the Fallopian tube was bleeding. Of the remaining cases, 8 were plugged. No deaths occurred from loss of blood. One woman died from sepsis ten days after delivery. Thus Dr. Tweedy's hospital experience comprised 72 cases in over 18,000 deliveries with 2 deaths. Thirty were plugged. Sir William Smyly, working in the same institution, had 5 deaths in 3600 patients treated before his adoption of the plug. These figures were convincing, and could only be explained on the assumption that the plug exercised a pronounced influence on hæmorrhage. It acted by impeding the circulation in the uterine vessels. Various other more or less satisfactory explanations had been given of the plug's action. Berkeley and Bonney had satisfied themselves that the efficacy of the plug depended on its increasing the power of the uterus to contract. In dealing with concealed accidental hæmorrhage, however, with the accompanying uterine inertia, they were driven to express a doubt whether the plug could have any directly useful effect. A plug applied in the method recommended by these writers would not compress the vessels, for they applied it with the aid of a speculum and a forceps, and used rolls of cotton, each tied round with a string to facilitate removal. Dr. Tweedy felt sure it would not be possible to place in position one dozen such rolls as are portrayed in their illustration, and that those adopting any similar technique must meet with disappointment. He had quoted from Berkeley and Bonney, not because they were singular in their views, but because of their great eminence. They undoubtedly voiced the popular opinion that it was useless to attempt the compression of blood-vessels by a vaginal plug. However, Dr. Tweedy maintained that compression was accomplished with the plug which he applied, and he had demonstrated this during the performance of several Cæsarean sections. These operations had afforded his assistants an opportunity of directly observing stoppage of pulsation in the uterine artery whilst pressure was made from below. Dr. Tweedy then described his method of plugging as follows:—

> To plug efficiently the left hand should be passed into the vagina with the palmar surface directed towards the hollow of the sacrum, while the tip of the fingers lie behind the cervix. Small pieces of cotton-wool, squeezed out of lysol solution, and each of the size of the thumb-knuckle, are then taken and inserted, by means of the right hand, round the cervix. The fingers of the left hand are kept busy squeezing the pellets into a compact mass, and forcing the spaces between them to permit the insertion of still another plug. This process is continued in a systematic manner from above downwards till the vulva is reached, and the vagina can hold no more. A T-bandage is applied to keep the plug in position, and an abdominal binder is fastened tightly from above downwards to press the side walls of the uterus against the vaginal dam, and thus completes the operation. A plug so applied will cause immediate cessation of hæmorrhage, and when it is removed after the lapse of hours so much blood only will be found as can be accounted for by the flow that took place during the operation.

The vaginal plug was not easy to apply, nor was its application harmless. If at the first attempt sufficient material could not be inserted to stop the bleeding, the plug had to be removed entirely and reinserted, a procedure made easier by the dilatation of the vagina. Pain, distress, and some shock always followed the application of the plug, and superficial tearing of the mucous membrane of the vagina was almost certain to occur, whilst the possibility of rupture of the uterus could not be discounted. It was clear that the words "vaginal plug" mean in Dublin something different from that which they meant elsewhere, and critics must take this into consideration. To what extent intraperitoneal hæmorrhage could be controlled by a vaginal plug was still a matter of doubt. In the vicinity of the internal os control was complete. On the other hand, it would utterly fail to stop a leakage from the ovarian artery. The latter supplied a relatively small amount of blood to the placenta, chiefly to its upper portion where detachment was rare. When the main supply was cut off the loss of blood pressure promoted coagulation in the sinuses.

Dr. Tweedy maintained that hysterectomy had no place in the treatment of accidental hæmorrhage. Finally, he stated that rupture of the membranes did not contra-indicate the vaginal plug.

Discussion.

The PRESIDENT said that the difficulty in treating ante-partum hæmorrhage, both of the accidental and inevitable type, was to apply the surgical axiom "put one's finger upon the bleeding spot." Still, there were means towards this end, and he thought that plugging the vagina by the Dublin method would certainly relieve the urgent symptoms for a time. In placenta prævia he thought that the associated uterine inertia was a very important factor to combat. Cases of ante-partum hæmorrhage would be divided into two very important groups. The first included all the cases where there was a mere trickle of blood, by far the greater proportion. These usually recovered with rest and morphine, and it was not necessary to interfere further. The second group included the severe types of bleeding where plugging might be employed with advantage. Unfortunately efficient plugging was very difficult, and few practitioners could do it properly.

Dr. FLETCHER SHAW (Manchester) congratulated Dr. Tweedy upon his results. He was also very glad that he had raised the question of diagnosis. He was of opinion that many cases recorded as accidental hæmorrhage were really marginal placenta prævia. In Manchester the routine treatment in these cases of accidental bleeding was to rupture the membranes, put on a binder, and give ergot, and he thought that the results were equal to those obtained by the use of the vaginal plug. One grave objection to plugging was the attitude of the general practitioner. Hæmorrhage was a very alarming symptom to the practitioner, and when confronted therewith he employed that method which he was taught as a student to be safe. If plugging was regarded as the method of election cases would inevitably arise where septic material was used for the plug, and this would add another risk to the patient. Calamities did in fact occur to-day from this very cause. For this reason he favoured the less risky method which he had mentioned. On the question of hysterectomy in cases of severe accidental hæmorrhage of toxæmic origin, he thought that this would seldom be required. Before 1916 he had met with six such cases, but none since then. As to unavoidable hæmorrhage, he agreed with the view that Cæsarean section should be used much more frequently when the child was alive.

Dr. HERBERT WILLIAMSON (London) submitted the results of treatment of accidental hæmorrhage at St. Bartholomew's Hospital since 1911. 2600 patients had been admitted to the maternity department, and amongst these were 98 cases, or 3·67 per cent., of ante-partum hæmorrhage. Fifty of these were true accidental bleeding and 48 were cases of placenta prævia. Of the former, 47 mothers recovered and 3 died. Twenty-seven of the children were born alive and 23 dead, a mortality of 46 per cent. Of the cases of placenta prævia, 12 were central, 27 lateral, and 9 marginal. Forty-five of the mothers recovered, the mortality being 6·25 per cent. Amongst the children, however, there were 32 stillbirths—i.e., a fœtal mortality of 66·6 per cent. As regards treatment, no local interference at all had been necessary in 58 per cent. of the cases of accidental hæmorrhage and in 16·6 per cent. of placenta prævia. Rest, position, and morphine had sufficed. Of the remaining cases, bipolar version had been performed eleven times, dilatation of the cervix three times, De Ribes's bag 18 times, Cæsarean section three times, and once for placenta prævia. Whenever vaginal plugging was required it was always done under a general anæsthetic, and strips of gauze were employed. The speaker had divided these cases into the following four groups: Group I., bleeding arrested and no further treatment required, 8. Group II., bleeding arrested but labour-pains not instituted, 3. Group III., bleeding recurred in three hours, 3. Group IV., bleeding not arrested by the plug, 4. In these 18 cases where plugging had been used there had been two maternal deaths. Of the children 5 were stillborn. Dr. Williamson, as a result of this investigation, had come to the following conclusions: Firstly, that the vaginal plug is a valuable method of treatment, and that in the majority of cases hæmorrhage tends to be arrested by its proper use. At the same time, it is not infallible, and whoever employs it must be prepared to go on to other measures. Secondly, that in the toxæmic variety of accidental hæmorrhage Cæsarean section is the only treatment. The speaker was not prepared to accept Dr. Hastings Tweedy's explanation of how the vaginal plug controls bleeding in these cases. He did not believe that it compresses the uterine vessels, and, even if it does, the anastomosis of vessels is so free that he thought it would be impossible to cut off the blood-supply to the uterus by this means.

Dr. HERBERT SPENCER (London) thought that the meeting was to be congratulated in having Dr. Hastings Tweedy's experience laid before it, and he was very interested in the results that he had brought forward. At the same time he wished to point out that, after all, many of these so-called cases of ante-partum hæmorrhage were of very little importance indeed. Anyone with much experience must know that it is rare indeed for Cæsarean section to be required for placenta prævia. Dr. Spencer had had a very large experience—in fact, it dated from last century, and he had only thought Cæsarean section necessary upon two occasions. One of these cases was where the child was alive and the cervix undilated, the other was the complication of placenta prævia with twins and hydramnios. He was led to condemn the general employment of the Cæsarean operation for placenta prævia in the strongest terms. As regards the treatment of accidental hæmorrhage, plugging had given very good results in his hands. He was glad to hear that Hastings Tweedy had condemned hysterectomy for this condition. Cæsarean section might be required, but hysterectomy never.

Dr. BLAIR BELL (Liverpool) thanked Dr. Tweedy for his very lucid explanation of the use of the vaginal plug. He was convinced that it was a valuable asset to treatment, but he could not agree with the action attributed to it. He thought that it was physically impossible to control the uterine arteries by this means, and even if the arteries were tied he did not think that the bleeding would be controlled. The more usual explanation that the plug stimulated uterine contractions was the probable one. The question was important, and he should like to see it settled by experimental investigations upon an animal such as a pregnant chimpanzee. The speaker asked for information with regard to the use of pituitrin in cases of severe accidental hæmorrhage. Personally he had not much experience of the complication, but he thought that when the membranes were ruptured it might be useful if given in moderate doses. As regards placenta prævia, he also was of opinion that there was only one treatment, and that was Cæsarean section. He had been using this treatment since 1912, and had only lost one mother and one baby.

Dr. W. E. FOTHERGILL (Manchester) referred to the teaching of students and midwives in connexion with the treatment of ante-partum hæmorrhage, and drew attention to the correspondence upon this matter which had passed between the Central Midwives Board and the examiners under the Board. He thought that it was a matter of extreme importance for teaching purposes that a definite treatment should be formulated to be used by midwives. What we thought was one thing, but equally and perhaps more important was what we taught. As regards the use of the uterine plug, he could not advise students to plug on account of the very grave risks of sepsis involved. He had seen too many absolute tragedies ever to make him an advocate of this measure.

Dr. G. W. FITZGERALD (Manchester) observed that it was evident that there were two schools of thought in connexion with the treatment of ante-partum hæmorrhage. To his mind the important factor lay in whether or not the uterus was contracting at the time of the bleeding. If the organ was active there was no need for contention, since it would do all that was required, and no active measures were indicated. The speaker said that he had had the privilege some years ago of working under Dr. Tweedy, and he was quite convinced that the old theory that a vaginal plug converted a revealed into a concealed variety of bleeding was fallacious. He was a rigid adherent of the plug, but all the same, since its use did not save the child, he thought that Cæsarean section *must* be considered. Also, in concealed accidental hæmorrhage extirpation of the uterus *might* be necessary. In cases where uterine contraction did not occur after the Cæsarean operation for this condition there was no other alternative. With regard to placenta prævia, the child must be given an equal chance with the mother, and for this reason he certainly wished to throw in his lot with those who advocated Cæsarean section for this complication. The risk to the mother was not increased, even where extreme secondary anæmia was present. This was proved over and over again in the recovery of patients following a ruptured tubal gestation.

Dr. T. W. EDEN (London) thought that it was a matter of the greatest importance that students should be taught exactly how to plug the vagina. If this were done, and the risks of sepsis thoroughly drilled into them, the dangers of the method would to a great extent disappear. The same remark applied to midwives. Under present conditions he quite agreed with what Dr. Fletcher Shaw had stated. With regard to placenta prævia, he hoped that one result of this meeting would be the formulation of definite indications for the employment of Cæsarean section in this connexion.

Dr. SYDNEY RUMBOLL (Leeds), whilst agreeing with Dr. Tweedy's indications for the use of the vaginal plug, thought that before its use the patient could be anæsthetised and every precaution taken against sepsis. Personally he had only performed Cæsarean section for placenta prævia upon one occasion.

Mr. GORDON LEY (London) said that in his opinion everything depended upon whether the uterus was active or not at the time the hæmorrhage occurred. He had discarded plugging because he had met with one case of rupture of the uterus following this method and due to necrosis of the uterine muscle. He had carried out certain pathological investigations upon this point and he felt convinced that if plugging was firmly carried out there was a real risk of necrosis. For this reason in mild cases he preferred to follow a course of inactivity. On the other hand, if the hæmorrhage was getting worse he did not hesitate to open the abdomen. In two cases he had been unable to make the uterus contract, and therefore he *had* to remove it. He had treated 120 cases of placenta prævia by external version and 61 per cent. of the babies had been born alive. He had only done the Cæsarean operation for this complication upon one occasion, and thought that it should be reserved for those cases where the patient was at or near full term, the child alive, and the cervix undilated.

Dr. R. G. MCKERRON (Aberdeen) expressed regret that Dr. Tweedy had limited his remarks to accidental hæmorrhage. He thought that this type of bleeding, although the more common, was not the more serious of the two types. He was of opinion that the plug offered the best method of treating severe external accidental hæmorrhage, and he always taught his students exact details of the technique. His experience of placenta prævia amounted to about 200 cases. In this number he had only had four maternal deaths, and he was quite in agreement with the statement that all attempts to save the child in this complication were made at the expense of the mother. The mortality attached to placenta prævia was due not to the method of treatment but to delay in its adoption. A waiting policy was too often practised. Personally he preferred version to the use of de Ribes's bag, and in the majority of cases that he had seen the cervix was sufficiently dilated to permit of bi-polar version. He had anticipated that the discussion would largely turn upon the advantages and disadvantages of Cæsarean section. He would like to point out that although this operation to-day was a safe operation, it was not absolutely safe and devoid of risk.

Professor J. M. MUNRO KERR (Glasgow) drew attention to the importance of external version in the treatment of placenta prævia as opposed to bi-polar version. The advantage of the former was that the manipulations were fewer and there was less disturbance of the placental site. Consequently, there was less hæmorrhage and a greater chance of saving the child. The great argument in favour of employing Cæsarean section in these cases was the probable lowering of the fœtal mortality-rate. He was of opinion that the fœtal mortality with the method of version existed largely because delivery is hurried. It was very wrong to hurry, and once the bleeding was controlled much more should be left to nature. In connexion with accidental hæmorrhage, he employed the vaginal plug very frequently, and agreed with Dr. Tweedy absolutely in all that he had said. He thought it very important to ascertain whether the plug really does control the uterine artery. With regard to concealed accidental hæmorrhage, he considered that Cæsarean hysterectomy *must* be performed on occasions when uterine contraction is absent. He also thought that the employment of pituitrin after rupture of the membranes was a good alternative method of plugging the vagina, and it certainly saved the patient from the risks attached to this mode of treatment.

AFTERNOON SESSION.

At the afternoon session Mr. CHRISTOPHER MARTIN (Birmingham) presided, when Mr. EARDLEY HOLLAND (London) and Professor MUNRO KERR opened a discussion on

Rupture of the Cæsarean Scar in Subsequent Pregnancy and Labour.

Mr. HOLLAND said that no accident was more disturbing to the peace of mind of an obstetric surgeon than rupture of the scar of a former Cæsarean section. His own interest in the subject had been excited by a series of five cases of rupture of the scar which had occurred in the obstetrical department of the London Hospital during the last five years. All the operations had been performed either by himself or his colleagues, and these treacherous accidents had left a profound impression. It seemed imperative to get at the true facts without delay, not only of the causes of rupture, but also as to the frequency with which ruptures occurred. It seemed all the more important because of the increased frequency with which Cæsarean section was performed and the ever-growing list of its indications. If the risk proved to be a negligible one, obstetric surgeons could with clear consciences continue to perform the operation according to its modern indications, but if the risk were appreciable safety would have to be sought either by doing fewer operations, or by devising a technique which carried less risk of rupture of the scar than the classical one. The only way to get at the truth was by obtaining the subsequent reproductive history of a large series of Cæsarean section patients; for this purpose he had invited the coöperation of many obstetric surgeons in active hospital practice throughout Great Britain, and the results of this collective investigation had been a great success, as he would show.

Mr. Holland then gave a few important points about the anatomy of the ruptured scar and the chief factors in its causation. Perfect healing of the uterine wound resulted in complete muscular regeneration; imperfect healing resulted in thin scars composed of fibrous tissue, and sometimes these scars were so thin that they consisted of little else than peritoneum and endometrium or decidua, with a little intervening fibrous tissue. The outstanding feature was complete failure of muscular union. It was, of course, these thin scars which were liable to rupture in future pregnancies. Owing to the progressive distension of the pregnant uterus the scar became thinner and thinner, and might ultimately give way under the tension of normal pregnancy or the additional stress of labour. He had collected 92 cases of ruptured scar, fully reported in the literature, and had made a close analysis of these cases, which together with his own five made a total of 97. This study had revealed that infection of the uterine wound was by far the most important factor in imperfect healing. If the uterine wound suppurated necrosis often occurred and the sutures cut out, allowing the muscular edges of the incision to retract, and ultimately leaving a thin bridge of fibrous tissue covered by peritoneum outside and endometrium inside. In the cases so far reported the recovery from the Cæsarean section had been febrile, or infection of the uterine or abdominal wounds had been noted in 51 out of 66 cases in which this point was mentioned. As regards accidental factors in rupture, a very important one was the implantation of the placenta over the scar in subsequent pregnancies. Amongst the published cases this had occurred in 33 out of 50 cases in which this point was noted. In his opinion the action of the placenta in favouring rupture lay in the occurrence of retro-placental hæmorrhage owing to separation of the placenta from the gradually stretching scar. In only

ordinary and chromic gut. His objections to the incision advocated by Professor Munro Kerr were (1) its greater difficulty; (2) its proximity to the source of sepsis.

Dr. H. S. DAVIDSON (Edinburgh) had not had a rupture, but his series did not include many cases. Silk and linen thread were used in his hospital. The decision as to the treatment of the subsequent pregnancy and the timing of the repeated Cæsarean, if performed, was very difficult.

Dr. J. D. BARRIS (London) said that the subject under discussion was a vital one. If it could be shown that the uterine scar was liable to rupture, our attitude to the classical conservative Cæsarean section would have to be profoundly modified. The cases had been collected not only for the limited period of 1912–18, but every case recorded at the hospital up to July, 1919, was included. The results were:—

Total number of Cæsarean sections (excluding sterilised cases)	81	
Number of cases treated	48—i.e.,	59%
„ „ in whom no subsequent pregnancy occurred	20 „	41%
Number of cases who subsequently became pregnant..	28 „	59%

Results of pregnancies:—

Delivery by natural passages	4
„ repeated Cæsarean section	22
„ abortion	1
Now pregnant	1
Rupture of scar	0

The method of suture employed was a buried interrupted silkworm-gut. Cæsarean section had been performed several times upon the same patient without untoward result. Dr. Barris pointed out that catgut was used in 15 of the cases of rupture collected by Dr. Holland and that sepsis occurred in about half the cases. In his opinion there was not sufficient evidence to show that the relative sterility was the result of Cæsarean section. He concluded that we were justified in performing the classical operation. Rupture was rare provided catgut was not used and that sepsis did not supervene. Should sepsis occur he suggested excision of the scar at a later date as a precautionary measure.

Dr. L. G. PHILLIPS (London) said that, excluding sterilised and fatal cases, 60 Cæsarean sections had been performed since 1912 at the Middlesex Hospital. Of these 60 cases 39 had remained sterile and 21 had subsequently become pregnant, of whom 14 had had repeated sections, 3 had had subsequent natural labours, 2 had had miscarriages, and 1 was pregnant at the present time. There had been 1 case of rupture of the scar. The interesting features of the analysis were the high sterility percentage, unexplained, and the special interest of the rupture case. With regard to the condition of the scar in repeated sections, 4 cases had had three and 11 cases had had two repeated sections, making in all 19 repeated sections. In 1 case only was the scar seen as a thin line; in the other 18 cases the scar was invisible and impalpable, and healing was apparently perfect. A most interesting feature was the anterior placental implantation in every case of repeated sections, though in the first sections the placenta was often posterior. It had been maintained that implantation on the scar was harmful, through the trophoblastic action of the placenta or the liability to retro-placental hæmorrhage. Dr. Phillips suggested that the very reverse might be true, for a thick placenta might act as an internal splint to the scar, and tend to prevent thinning of the scar region in labour. Moreover, the uterine musculature of the scar region, because of its apposition with the placenta, would not be subjected to the same muscular strain in labour as the rest of the uterus. If this were not so, uterine retractions and contractions would lead to premature separation of the placenta, which was not common. Of the 60 cases 39 had remained sterile for from two to seven years, mostly three years or over, and, excluding cases where precautions had been taken, the percentage still worked out at 52. There was no indication that pyrexia in the puerperium was a causative factor, for 68·4 per cent. of the sterile cases had an afebrile puerperium, while 27 per cent. of those subsequently pregnant had pyrexia in the puerperium. Age and parity appeared to have no influence, as half of the sterile cases were primiparæ in the twenties. The frequency of recurring pregnancies with repeated Cæsarean section indicated that the operation itself was not to blame; latent gonorrhœal infection *might* play a part. Perhaps this sterility and delayed pregnancy represented Nature's attempt to allow time for consolidation of the scar. Unless the cause could be discovered and removed, such a high sterility percentage might become a powerful factor limiting the scope of the operation.

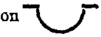
Dr. Phillips then described the case of rupture. The patient had had very severe pyrexia in the puerperium, with suppuration of uterine and abdominal wounds, from which she nearly died. The interesting feature of the case was that the patient had been delivered naturally of a full-term child one year after the operation, and only at the second pregnancy did the scar rupture. In Dr. Phillips's opinion a natural labour should not have been allowed in a case with such a bad history of sepsis. The fact that even this weak scar was strong enough for one successful subsequent labour, and the invisibility and impalpability of the scars in the 18 repeated sections, presented a strong case against a serious view of the probabilities of rupture of the Cæsarean scar. He considered the causes of rupture of the scar to be: (1) sepsis; (2) faulty suturing; (3) the use of catgut for sutures, involving absorption before union was secure owing to vigorous autolysis in a rapidly involuting uterus. He suggested that only when the technique could be trusted, the puerperium had been afebrile, and if no abnormality or obstruction was present, could natural labour be allowed with comparative safety. The history was the all-important factor, and especially the old temperature chart.

Dr. AMAND ROUTH (London) said that when, in 1910, he collected 1282 cases of Cæsarean section performed by over 100 obstetricians and gynæcologists then living, beginning with a Cæsarean section performed by Dr. Lloyd Roberts in 1867, the risk of rupture of the scar in subsequent pregnancies was briefly discussed, more particularly from the point of view of whether sterilisation of the patient was justifiable or desirable. In 1910 the mortality of Cæsarean section for contracted pelvis in clean cases was under 3 per cent., and the risk of repeated Cæsarean section in anticipated cases was even less, but 14 out of the 100 operators advised sterilisation to avoid the danger of rupture of the scar in subsequent pregnancies. In this century "not sterilised" operations had increased considerably, leading to more subsequent pregnancies and repeated Cæsarean sections. Of 669 "not sterilised" cases of Cæsarean section for contracted pelvis 112 cases had become pregnant. Of these 112 pregnancies 108 ended in repeated Cæsarean sections (some more than once), and 3 had a subsequent rupture through the scar (Nos. 12, 37, and 38 in Mr. Holland's list), a percentage of 2·6 per cent. However, Dr. Routh thought that there must have been many pregnancies and probably some more ruptures amongst the 354 "not sterilised" cases included in the last three and a half years of his series. Dr. Routh said that to encourage perfect union, if the position of the placenta could be determined or surmised, the incision should be made elsewhere, especially in "unclean" cases. It seemed clear that transverse fundal incisions were not advisable, partly because the placenta often spread on to the fundus. Professor Munro Kerr's case (No. 12 in Mr. Holland's series) was an instance of this complication. Cæsarean section should be performed at full term or at the earliest indication of labour, so as to secure perfect uterine retraction. Intra-uterine sepsis was doubtless a cause of imperfect union of the incised muscles, especially if the incision had been made through the placental site. Sepsis, even with suppuration of the wound, did not necessarily prevent further pregnancies or repeated Cæsarean section. In one of Dr. Routh's cases repeated attempts at delivery by forceps had been made during the previous 48 hours. Septic sloughs had appeared on the child's head and round the abdominal wound, and a utero-abdominal fistula had resulted. This was closed when an appendix operation was subsequently performed The patient had since had two children delivered by Cæsarean section As to sutures, in 1910 catgut was used for both deep and superficial sutures by 27 operators, whilst 41 used silk and 8 silkworm gut Dr Routh agreed with Mr Holland that theoretically silkworm gut was the safest material to use for the deep sutures

Dr CARLTON OLDFIELD (Leeds) said that catgut had been used in Leeds for two generations and he was sorry to see it attacked Of his 41 patients he had himself visited 30, and 7 more had answered questions by letter, so that the results in 37 cases were known Of these, 20 had had no pregnancy after the Cæsarean section Three had had natural labour at term, and one of these—whose Cæsarean section had been performed for an ovarian cyst—had been through three full term pregnancies since her operation Three patients were now pregnant In all 21 patients had become pregnant again Dr Oldfield believed that the exaggerated importance attached to the operation by patients and sometimes even by the profession, contributed indirectly to the relative sterility, since precautions were adopted to prevent a recurrence of pregnancy He considered that by explaining to patients the safety of the operation the emotional factor, which made for artificial sterility, could be controlled He did not consider catgut to blame for rupture—the important point was avoidance of an infected wound The patient's second operation should be undertaken before labour set in There were many objections to the use of silk sutures, and the possible immediate results, such as a more septic wound, should be borne in mind His objection to Professor Munro Kerr's suggestion was that there would be extreme tension of the scar if natural labour took place, beside the greater likelihood of infection

Dr HERBERT SPENCER after expressing his appreciation of the valuable papers read by Mr Holland and Professor Munro Kerr, regretted that the work had not been carried out on the same scale and general plan as that adopted by Dr Routh It was a pity that the series was not made continuous with Dr Routh's, and that the cases in which the first operation was performed before 1912 were excluded Dr Spencer had performed 66 Cæsarean sections and 13 repeated Cæsarean sections, and had never met with a case of ruptured scar He did not think it ought to occur in an aseptic case *properly sutured* He regarded adhesions in an aseptic case as due to faulty technique His practice was to use carbolised floss silk of moderate thickness for the deep sutures, and then a continuous fine silk suture passed parallel to the incision, taking a double grip of the peritoneum and superficial layer of muscle, so that the deep sutures were buried and no suture at all was shown He regarded this method of suture as far superior to the Lembert or mattress sutures He strongly condemned the use of catgut, as it was impossible to ensure its sterility He considered silkworm gut too thin for closing the Cæsarean section wound as it was apt to cut the tissues

Dr Spencer drew the attention of members to the results in eclampsia Of 12 cases delivered by Cæsarean section 5 only became pregnant subsequently, and in 2 of these the scar ruptured with a fatal result He considered that Cæsarean section was rarely justifiable for eclampsia, and suggested that Cæsarean section was now being performed too often on inadequate grounds In general he agreed with the dictum, "Once a Cæsarean section, always a Cæsarean section" As to the retro vesical incision, he saw no advantage in its use in aseptic cases, but it might be useful in certain infected ones, especially if stitched up with silver wire left long and subsequently removed through the os The value of this incision would have to be decided by carefully recorded cases, with due reference to its effect on the time taken in delivery and the condition of the child

Dr BLAIR BELL considered that of the three causes of rupture sepsis was the most prominent If the placenta was on the anterior wall it was difficult to sew up the wound properly The position of the placenta could often be recognised by the presence of blood vessels on the uterine wall, and the site of the incision could be chosen accordingly The factor of autolysis of the muscle was unavoidable The technique used was often faulty, a mattress suture with overstitch as described in his recent lecture (THE LANCET, May 8th, p 993) was preferable to the interrupted suture As to suture material, Dr Bell believed silk to be quite unsuitable, but approved of chromic catgut He had tried Professor Munro Kerr's method In the first case he had found it simple and easy, and the wall was not so thin as was suggested by some Very rapid extraction was possible—a leg should be found and pulled out first He preferred a trap door incision  as a transverse one did not give enough room He approved of strong hypochlorite solution for sterilising the parts In another case a network of varicose veins covered the area he had wished to incise, so that he had to extend his original skin incision upwards He concluded that Professor Munro Kerr's method was unsuitable because it was not always possible to use it, and the decision could not be made till the uterus was exposed

Dr E O CROFT (Leeds) had had no personal experience of rupture of the uterine wound following Cæsarean section, but considered that the effective closure of the wound so that union of the whole thickness of the muscular wall was brought about with the formation of a minimum scar tissue was the important point in prevention He was a champion of the silk suture In two cases in which the patient had died of other causes, and he had occasion to examine the uterus, there was perfect union of the uterine wall and no trace of silk to be found In one of these cases in which the patient had contracted gonorrhœa and had become pregnant pyosalpinx was found, and though infection ensued the wound itself, sutured with silk, still held The stitches should not be more than ½ inch apart, should be inserted with a fully curved needle, should be entered and brought out at a good distance from the cut edges, and should include peritoneum but not decidua

Dr G FURNEAUX JORDAN (Birmingham) had done 19 repeated Cæsarean sections, and in three cases a third operation, but had never seen a rupture He used one continuous catgut suture, and had only once been able to find the previous scar, though he always made his incision in the mid line He was struck by the large relative sterility in Mr Holland's figures He agreed with Dr Oldfield's view as to its chief cause, and habitually reassured the patient at the first operation He never refused to perform a Cæsarean section on grounds of previous examinations outside, and had had only one death from sepsis He always poured a big jug of biniodide through the uterus

Dr FOTHERGILL was inclined to agree with the American belief that one Cæsarean need not necessarily be followed by another, provided that the patient was kept under observation during her next pregnancy, and that the operation had not been done for mechanical obstruction He did not believe the particular type of suture used to be of great importance, nor did he think it was necessary to sterilise the uterus As regards Professor Munro Kerr's method, Dr Fothergill said that he always made his uterine incision high so that the two incisions, abdominal and uterine, were not opposite each other

Dr W GOUGH (Leeds) had had experience of 100 cases—all done for contracted pelvis—of which 18 patients had had two and 5 patients three Cæsarean sections He had never had a rupture, but had seen thin scars He always used catgut in a continuous suture in two layers He would like to hear the proportion of ruptures in cases operated on for contracted pelvis only, as in the newer indications for Cæsarean section, such as eclampsia or ante partum hæmorrhage, the muscle might be weakened by toxæmia or exhaustion

Dr J W BRIDE (Manchester) described the Subsequent Reproductive Histories of 190 Cases of Cæsarean Section from St Mary's Hospitals, Manchester, during the period 1912–18 The total cases in the period under investigation communicated with were 241, replies were received from 190 cases Of these, 94 subsequently became ordinary and chromic gut. His objections to the incision advocated by Professor Munro Kerr were (1) its greater difficulty; (2) its proximity to the source of sepsis.

Dr. H. S. **Davidson** (Edinburgh) had not had a rupture, but his series did *not* include many cases. Silk and linen thread were used in his hospital. The decision as to the treatment of the subsequent pregnancy and the timing of the repeated Cæsarean, if performed, was very difficult.

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Number of cases treated	48	—i.e., 59%
,, ,, in whom no subsequent pregnancy occurred	20	,, 41%
Number of cases who subsequently became pregnant..	28	,, 59%

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Delivery by natural passages	4
,, repeated Cæsarean section	22
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The method of suture employed was a buried interrupted silkworm-gut. Cæsarean section had been performed several times upon the same patient without untoward result. Dr. Barris pointed out that catgut was used in 15 of the cases of rupture collected by Dr. Holland and that sepsis occurred in about half the cases. In his opinion there was not sufficient evidence to show that the relative sterility was the result of Cæsarean section. He concluded that we were justified in performing the classical operation. Rupture was rare provided catgut was not used and that sepsis did not supervene. Should sepsis occur he suggested excision of the scar at a later date as a precautionary measure.

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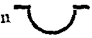
Dr. HERBERT SPENCER, after expressing his appreciation of the valuable papers read by Mr. Holland and Professor Munro Kerr, regretted that the work had not been carried out on the same scale and general plan as that adopted by Dr. Routh. It was a pity that the series was not made continuous with Dr. Routh's, and that the cases in which the first operation was performed before 1912 were excluded Dr. Spencer had performed 66 Cæsarean sections and 13 repeated Cæsarean sections, and had never met with a case of ruptured scar He did not think it ought to occur in an aseptic case *properly sutured*. He regarded adhesions in an aseptic case as due to faulty technique His practice was to use carbolised floss silk of moderate thickness for the deep sutures, and then a continuous fine silk suture passed parallel to the incision, taking a double grip of the peritoneum and superficial layer of muscle, so that the deep sutures were buried and no suture at all was shown. He regarded this method of suture as far superior to the Lembert or mattress sutures. He strongly condemned the use of catgut, as it was impossible to ensure its sterility. He considered silkworm-gut too thin for closing the Cæsarean section wound as it was apt to cut the tissues.

Dr Spencer drew the attention of members to the results in eclampsia. Of 12 cases delivered by Cæsarean section 5 only became pregnant subsequently, and in 2 of these the scar ruptured with a fatal result He considered that Cæsarean section was rarely justifiable for eclampsia, and suggested that Cæsarean section was now being performed too often on inadequate grounds. In general he agreed with the dictum, "Once a Cæsarean section, always a Cæsarean section." As to the retro vesical incision, he saw no advantage in its use in aseptic cases, but it might be useful in certain infected ones, especially if stitched up with silver wire left long and subsequently removed through the os The value of this incision would have to be decided by carefully recorded cases, with due reference to its effect on the time taken in delivery and the condition of the child.

Dr. BLAIR BELL considered that of the three causes of rupture sepsis was the most prominent If the placenta was on the anterior wall it was difficult to sew up the wound properly. The position of the placenta could often be recognised by the presence of blood-vessels on the uterine wall, and the site of the incision could be chosen accordingly. The factor of autolysis of the muscle was unavoidable. The technique used was often faulty, a mattress suture with overstitch as described in his recent lecture (THE LANCET, May 8th, p. 993) was preferable to the interrupted suture. As to suture material, Dr. Bell believed silk to be quite unsuitable, but approved of chromic catgut He had tried Professor Munro Kerr's method. In the first case he had found it simple and easy, and the wall was not so thin as was suggested by some. Very rapid extraction was possible—a leg should be found and pulled out first. He preferred a trap door incision  as a transverse one did not give enough room. He approved of strong hypochlorite solution for sterilising the parts. In another case a network of varicose veins covered the area he had wished to incise, so that he had to extend his original skin incision upwards He concluded that Professor Munro Kerr's method was unsuitable because it was not always possible to use it, and the decision could not be made till the uterus was exposed

Dr. E. O. CROFT (Leeds) had had no personal experience of rupture of the uterine wound following Cæsarean section, but considered that the effective closure of the wound so that union of the whole thickness of the muscular wall was brought about with the formation of a minimum scar tissue was the important point in prevention. He was a champion of the silk suture. In two cases in which the patient had died of other causes, and he had occasion to examine the uterus, there was perfect union of the uterine wall and no trace of silk to be found In one of these cases in which the patient had contracted gonorrhœa and had become pregnant pyosalpinx was found, and though infection ensued the wound itself, sutured with silk, still held The stitches should not be more than ½ inch apart, should be inserted with a fully curved needle, should be entered and brought out at a good distance from the cut edges, and should include peritoneum but not decidua

Dr. G FURNEAUX JORDAN (Birmingham) had done 19 repeated Cæsarean sections, and in three cases a third operation, but had never seen a rupture. He used one continuous catgut suture, and had only once been able to find the previous scar, though he always made his incision in the mid line He was struck by the large relative sterility in Mr. Holland's figures. He agreed with Dr. Oldfield's view as to its chief cause, and habitually reassured the patient at the first operation He never refused to perform a Cæsarean section on grounds of previous examinations outside, and had had only one death from sepsis. He always poured a big jug of biniodide through the uterus.

Dr. FOTHERGILL was inclined to agree with the American belief that one Cæsarean need not necessarily be followed by another, provided that the patient was kept under observation during her next pregnancy, and that the operation had not been done for mechanical obstruction. He did not believe the particular type of suture used to be of great importance, nor did he think it was necessary to sterilise the uterus. As regards Professor Munro Kerr's method, Dr. Fothergill said that he always made his uterine incision high so that the two incisions, abdominal and uterine, were not opposite each other.

Dr. W GOUGH (Leeds) had had experience of 100 cases—all done for contracted pelvis—of which 18 patients had had two and 5 patients three Cæsarean sections. He had never had a rupture, but had seen thin scars. He always used catgut in a continuous suture in two layers He would like to hear the proportion of ruptures in cases operated on for contracted pelvis only, as in the newer indications for Cæsarean section, such as eclampsia or ante partum hæmorrhage, the muscle might be weakened by toxæmia or exhaustion.

Dr. J. W. BRIDE (Manchester) described the Subsequent Reproductive Histories of 190 Cases of Cæsarean Section from St. Mary's Hospitals, Manchester, during the period 1912–18. The total cases in the period under investigation communicated with were 243, replies were received from 190 cases. Of these, 91 subsequently became pregnant, of whom 3 were delivered by the natural passages, 68 had repeated Cæsarean sections, and 1 had a rupture of the Cæsarean scar; 13 had aborted and 21 were now pregnant. Of the 96 cases who had not become pregnant again, 22 cases took precautions against pregnancy, 4 cases were widowed, 3 cases died of non-pelvic conditions at a later date; in one case the husband had been on active service since the operation. The remaining 66 state that they took no precautions. Fifty-three of the 96 patients had pyrexia of greater or less degree after the operation. Of the 4 cases where natural delivery had been attempted 1 died of rupture of the Cæsarean scar. The other 3 were cases of slight pelvic contraction. Two had living children, and 1 a craniotomy and subsequently another Cæsarean. In each of the 68 cases of repeated Cæsarean sections the indication had been contracted pelvis, with the following five exceptions: large child, 1; eclampsia, 1; fibroid, 1; recto-vaginal fistula, 1; overdue pregnancy with excessively large child, a monster, 1. Twenty-one cases were allowed to go into labour, and 47 cases were not in labour. In only 1 case was silk used. Forty-four cases had some degree of pyrexia. In the case of rupture of the scar, the patient, aged 23, was admitted on Nov. 24th, 1916, with an ovarian cyst obstructing labour. Dr. Fletcher Shaw performed Cæsarean section and right ovariotomy. Early in 1919 she was seen by Dr. Shaw, who decided to let labour proceed normally as there was no pelvic contraction. On May 14th, 1919, the patient was admitted in labour at 2.40 A.M. in good condition. At 5 A.M. she had some very strong pains and slight bleeding from the vagina. At 8.15 A.M. she had a running pulse of 140, and a subnormal temperature. On abdominal palpation it was obvious that the uterus was ruptured, and the abdomen was immediately opened. The child was free in the peritoneal cavity and dead. The uterus was inverted through the old scar, which had ruptured, and the placenta was adherent to the inverted uterus. The peritoneal cavity was full of blood. The child and placenta were rapidly removed, the inversion corrected, and supravaginal hysterectomy performed as quickly as possible. The patient died at 7 P.M. from collapse and shock.

Dr. Bride concluded from the cases investigated by him that precautions against pregnancy probably accounted for much of the relative sterility after Cæsarean section, especially as included in the 66 cases who are put down as "no precautions" were many who evaded answering this question at all. Of the 21 cases now pregnant, several showed an interval from child-bearing corresponding with the interval of absence of the husband on active service. Abortions did not seem to follow Cæsarean section with any marked frequency. No definite conclusion as to the safety of allowing a post-Cæsarean uterus to be subjected to the strain of labour could be drawn from the statistics of St. Mary's Hospitals, Manchester. In Dr. Bride's opinion, however, it appeared doubtful if it could ever be good practice to subject a scar in an organ so liable as the uterus to excessive distension and powerful contraction, to the strain of labour. With regard to suture media, with perhaps half a dozen exceptions, two layers of catgut, sometimes chromicised, had been used in all the cases in that series. He thought that the figures showed that repeated Cæsarean sections might be undertaken many times with impunity, and that the risk in the early stages of labour appeared negligible. He had assisted Dr. Fletcher Shaw to perform Cæsarean section for the seventh time on the same patient last year. She had been in labour four or five hours before operation, and the uterus, though adherent, was well healed. She was sterilised on that occasion.

Mr. **CLIFFORD WHITE** (London) said that two theoretical considerations had an important bearing on the suture joining the Cæsarean incision. Firstly, the uterus was the seat of intense autolysis, as was shown by the weight diminishing from about 2 lb. to 2 oz. in a few weeks. This autolysis was most rapid in the first few days, and it was not fair to expect an absorbable suture like catgut, standardised for absorption in ordinary muscle, to withstand digestion in an organ where autolytic action was proceeding with such violence. Secondly, a continuous suture was unsuitable for holding the wall of the uterus in close apposition, because the uterus was involuting at the rate of over $\frac{1}{2}$ inch in 24 hours. Hence a 5-inch uterine incision was only 3 inches long on the fourth day, and any continuous suture must become slack and incapable of holding the uterine wall closely united. This applied to some extent to the use of mattress sutures. As the uterus was diminishing so rapidly in size the interrupted sutures must be tied much more tightly than was usual in other surgical procedures, or they would become loose in a few days. The rhythmic contractions and relaxations of the uterus would accentuate this tendency. It would seem, therefore, on theoretical grounds that a weak scar was particularly likely to occur: (1) with catgut, and (2) when continuous sutures were employed; conversely, a strong scar should result when a non-absorbable interrupted suture was employed. Mr. White had personal experience of 70 cases of Cæsarean section. Of these, eight were Cæsarean hysterectomies, leaving 62 cases in which the scar might yield. None were sterilised. In every case he had used interrupted sutures of silk or linen thread. He had never seen or heard of any yielding of the scar in any of these cases. Of the 62 cases, seven had had more than one Cæsarean operation—two patients having Cæsarean section performed three times and five twice. In each case the scar was sound, and in only one was it easily noticeable. In addition to these, several cases had come to his knowledge where patients had had normal or forceps deliveries after Cæsarean sections for eclampsia or placenta prævia, and in no case had there been symptoms or signs of rupture. In one case of Cæsarean section for eclampsia in two successive pregnancies the scar was not found to be weakened when seen at the second operation, showing that toxæmia did not necessarily cause imperfect uterine union in all cases.

Dr. **FLETCHER SHAW** said he used chromic catgut, but found Mr. Holland's figures convincing. There might, however, on further analysis prove to be a different explanation for the ruptures.

Dr. **LAPTHORN A. SMITH** (London) said a few encouraging words on the success attending Cæsarean section. He feared lest the figures given might unduly depress the younger members present.

In reply, Mr. **HOLLAND** expressed surprise that all the members were not now convinced of the influence of the suture material on rupture. He preferred silkworm-gut to silk. In reply to Dr. Spencer he had excluded cases operated on for the first time before 1912 because it would have been impossible to tell which of the scars had ruptured.

Professor **MUNRO KERR**, in answer to Mr. Clifford White, said that no cystitis had occurred in any of his cases. In answer to Dr. Blair Bell, he did not see why placenta prævia should interfere with his method, as an ordinary incision was often made inadvertently over the placental site with no bad results.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM: ANNUAL CONGRESS.

THE Annual Congress of this society took place in the rooms of the Royal Society of Medicine on April 29th and 30th, and May 1st, under the presidency of Mr. J. B. STORY, P.R.C.S.I.

President's Address.

The teaching and examination of medical students in ophthalmology formed the subject of the President's address. He said: The Council of British Ophthalmologists have already urged the General Medical Council to adopt two reforms—first, to make three months' attendance at an ophthalmic clinic obligatory, and, secondly, to have an examination by ophthalmic surgeons as part of the final pass examination. The General Medical Council accepted the first and rejected the second—a most astonishing thing to those who know well that medical students have no time to waste on subjects that are not necessary and in which examination is not compulsory. There are two reasons why a certain knowledge of ophthalmology is necessary for every person permitted to practise: (1) because the vast majority of practitioners cannot escape from having to diagnose and treat diseases of and injuries to the eyes when no specialist can be obtained; and (2) because in many serious diseases the evidence afforded by ocular conditions is most important, and often the ocular symptoms are those which induce the sufferer to seek medical advice. For instance, interstitial keratitis may be the first evidence of infantile syphilis, even before the eruption of the teeth described by Jonathan Hutchinson; and acquired syphilis may show itself in the choroid, iris, or retina long after the patient has forgotten the primary disease completely. Ocular tuberculosis may be the first visible manifestation of that disease, and the ocular signs are important in tabes, disseminated sclerosis, meningitis and other intracranial lesions, diabetes, nephritis, arterio-sclerosis, to mention only a few serious and not uncommon affections. In many of these the ocular signs may be mainly naked-eye appearances or fairly easily observed ophthalmoscopic lesions.

The final decision of the General Medical Council is said to be that the hospitals should, or may, refuse certificates to students who do not acquire sufficient knowledge, thus shuffling off the responsibility thrown on it by Act of Parliament and placing it, not on the licensing bodies over whom it has control, but on the medical staffs of hospitals. It has been objected that if an examination in ophthalmology is instituted at the Final it will overload the curriculum, and that other special branches of surgery will claim a similar privilege. As regards the first objection, the special clinical examination has been the rule in every one of the Irish licensing bodies for some 30 years and has not caused overloading. As regards the second, it has been already pointed out how great is the importance of ocular signs and symptoms in serious constitutional diseases, an importance much greater than can be assigned to any of the other organs usually taken up as specialties. Ophthalmic surgeons are not narrow-minded, and would certainly urge that every medical man should be able to recognise anomalies of ear, nose, and throat which can be seen with such simple instruments as the common head-mirror and aural speculum.

The speaker insisted upon the necessity of a practical clinical examination, as in his experience of now 30 years as an examiner he had found students whose book knowledge was perfect unable to diagnose quite simple ocular anomalies in the patients before them. The General Medical Council should be urged by the society to reconsider its recommendation, and institute the following reforms: 1. That each candidate for a licence to practise should be compelled to attend an ophthalmic clinic for a period of three months. 2. That the Final examination should include, as a separate pass subject, a clinical examination by ophthalmic specialists. If the Ophthalmological Society is unsuccessful, it is hoped that the general practitioners throughout Great Britain will take the matter up.

Contributions and Functions.

Contributions were read on Thursday, April 29th, by, among others, Mr. C. H. Usher and Mr. John Rowan, whose paper on the Non-operative Treatment of Glaucoma led to an interesting debate in which Mr. Treacher Collins, Mr. A. Zorab, Sir Anderson Critchett, Mr. Harrison Butler, Dr. G. Mackay, Mr. Rayner Batten, Mr. Richardson Cross, Mr. Gray Clegg, Mr. R. Cruise, Dr. A. Hugh Thompson, Mr. Bishop Harman, Mr. B. Cridland, and the President took part.

There was a wealth of clinical material shown at the Royal London Ophthalmic Hospital, City-road, and St. Margaret's Hospital, under the Metropolitan Asylums Board, concurrently with the Congress. On Thursday afternoon members visited Moorfields, when Mr. Percy Flemming lectured on the Neighbourhood of Moorfields in Former Days, with the aid of lantern-slides and maps. The lecturer was cordially thanked for an interesting discourse.

On Friday morning Sir Archibald Garrod and Mr. R. Foster Moore opened a discussion on Diabetes in Relation to Eye Diseases, in which Dr. O. Leyton, Dr. F. J. Poynton, Mr. H. P. Adams, Dr. P. J. Cammidge, Dr. C. O. Hawthorne, and Mr. R. R. James, among others, took part. Papers were read by Mr. H. M. Traquair, Dr. Gordon Holmes, Mr. M. L. Hine, Mr. Ernest Clarke, Mr. Humphrey Neame, and Mr. W. Wallace.

On Saturday morning the members visited St. Margaret's Hospital, which is devoted, under the Metropolitan Asylums Board, to the study of ophthalmia neonatorum, when after an inspection under the direction of Mr. M. S. Mayou, a full discussion took place on the prevention of the disease, opened by Dr. G. Fitzgibbon, Master of the Rotunda. Mr. Mayou, Dr. Scharlieb, Dr. Elizabeth Macrory, Mr. Sydney Stephenson, Dr. Maitland Ramsay, Dr. J. Wharton, and Mr. A. L. Whitehead were among those who contributed to the debate.

Mr. TREACHER COLLINS proposed the following resolution, which was carried unanimously:—

"The Ophthalmological Society of the United Kingdom wishes to urge on the Metropolitan Asylums Board, now that so large a number of cases of ophthalmia neonatorum are aggregated in one institution, that facilities should be afforded at it for the teaching of medical students, midwives, and district nurses as to the natural history and treatment of the disease."

The members of the Congress dined together on the opening evening.

THE ASSURANCE MEDICAL SOCIETY.

A MEETING of this society was held on May 5th, Dr. T. D. LISTER, the President, in the chair.

Sir THOMAS OLIVER read a paper on

Gastro-intestinal Operations and their Sequelæ, especially Cancer, from a Life Insurance Point of View.

After some introductory remarks the lecturer proceeded:

Gastro-duodenal ulceration is a serious condition. Life is only saved and health regained in many instances by short-circuiting the route from the stomach to the jejunum. Even where the operation has been successful, we can hardly regard the life as a normal one from an insurance point of view. Some offices probably do not accept such lives at all. Too little time has passed since the operation became a recognised means of treatment for sufficient experience to have been gained and data collected for us to speak absolutely upon this point, for although three or four years may have been spent in comparatively good health by a patient since his operation certain accidents may yet arise at the junction or close to the site of operation, which may undo all the good achieved. What are these accidents? Like many of you, I am consulted fairly frequently by patients upon whom gastro-enterostomy has been performed, and who are no better for the operation. There is always the possibility of fresh peptic ulceration taking place, not so much in the stomach itself as in the jejunum, and due to the rush of acid chyme into this portion of the intestine. Again, ulceration may occur at the junction—a stitch or two may have given way rather prematurely, and thus created a minute chink in which the acid contents leaving the stomach exert a harmful influence. There is, too, the possibility of adhesions forming, while yet another possibility is that of cancer. It is this question of growth as a sequence to gastro-jejunostomy which led me to prepare this paper in the hope that it might be discussed at this meeting and that light might be thrown upon this important subject. A few months ago I examined a client for life insurance who had had gastro-jejunostomy performed upon him, and as I had recommended acceptance of the life as an invalid one for a limited period of years with a slight loading, the head office suggested that in a large percentage of patients thus operated upon cancer subsequently developed at the site of the operation. This has not been my experience, neither has it been that of our local surgeons, nor of the Royal Victoria Infirmary. The sequel of malignant disease following upon gastric operation, apart from the fact of cancer existing at the time of the operation, has not been observed in the North of England. As the subject is important from a life insurance point of view, I asked for further details from the head office, and received the following:—

"(1) The principal medical officer stated that, as regards operation for duodenal ulcer, the disease might or might not occur on a future occasion; it might lead to stricture and ulceration, or the scar left after the operation might degenerate into cancer.

> (2) Another of the medical examiners was of the opinion that if the ulcer did not heal, bleeding or perforation might take place, and that a fresh ulcer *might* form at the site of operation or cancer develop.
>
> (3) Another examiner wrote that fresh ulceration might take place at the site of gastro-enterostomy, adhesions might form, or, as a later but not a common event, a malignant growth might develop.
>
> (4) A fourth examiner was of the opinion that the following complications may follow operations for duodenal ulcer—internal hernia, rather a rare event, and perforation in 2 per cent."

Cancer as a Sequela to Gastro-enterostomy.

To me the replies, so far as malignancy is concerned, were not helpful. Cancer was only referred to in such a way as to suggest that the statements were not based upon experience. I therefore wrote to my infirmary colleagues, and here are their replies. Mr. J. W. Leech says, as the result of 20 years' experience as an operator in gastro-duodenal diseases:—

> "Cases of malignant disease are recorded, but such is not my experience. It would, however, be reasonable to presume that some cases primarily regarded as simple ulcer were, in fact, malignant at the time of operation."

Another surgical colleague, Mr. Gray Turner, writes:—

> "If cancer follows, it must have been present at the time of operation and been overlooked. Although not unknown, it is so rare for cancer to develop after the operation as to make it certain that it had arisen *de novo*. After gastro-enterostomy there are fresh dangers which may become a menace to longevity—viz., jejunal and gastro-jejunal ulceration in 2 to 5 per cent."

The experience of my infirmary colleagues is in conformity with my own—viz., that if cancer is subsequently found at or close to the site of any of the operations I have alluded to, it is more than probable that it was present, but not diagnosed, at the time of the operation. I wrote to Sir Harold Stiles, of Edinburgh, and asked him what sequelæ he had found after gastro-enterostomy, and he replies:—

> "I have only seen two ulcers follow gastro-enterostomy; they were both at the seat of anastomosis. ...... I have had no experience of cancer following gastro-jejunostomy."

Mr. Henry M. W. Gray, of Aberdeen, writes:—

> "No case has come under my notice of cancer developing at the site of gastro-jejunostomy operations. ...... I think the condition must be a very rare one, else we should have heard much more about it ere this."

Sir Kennedy Dalziel, of Glasgow, writes:—

> "I have nine cases of cancer of stomach after operations for gastro-enterostomy, but in no case did the tumour originate at the new orifice, though simple ulcer has been noted in five cases there. Most of the malignant cases have developed eight to ten years after the gastro-enterostomy on the site of the original ulceration. I have not had any ulceration at the anastomosis since I gave up clamps and used three rows of stitches, now about 15 years ago."

Sir Kennedy Dalziel's experience is very interesting. It confirms the view expressed by some pathologists that cancer occasionally develops upon an old ulcer. There has been an opinion expressed by some French physicians that pulmonary phthisis occasionally follows upon gastro-enterostomy, but of this I have no experience.

To obtain further information upon this relationship of gastro-jejunostomy and cancer I wrote to Dr. Homer Gage, of Worcester, Mass., U.S.A., Medical Director of the State Mutual Life Insurance Co. In a pamphlet entitled "Surgery of Gastric and Duodenal Ulcers in Relation to the Insurance Risk," he states, after alluding to the possible recurrence of symptoms years afterwards, that the

> "study of living pathology made possible by gastric surgery has revealed gastric ulcer as the forerunner, if not the cause, of a very large proportion of gastric cancers."

Experience in America.

In the Clinic of the brothers Mayo 71 per cent. of gastric cancers presented evidence of a previous ulcer; also in many instances, where the ulcer had been excised at the operation, microscopical examination showed that malignant disease had already commenced. What the Mayo experience shows is this—that at the operating table it is not always easy to tell, by naked-eye appearances, a simple ulcer from one in which cancerous changes have already commenced, and that since on microscopical examination in what appeared to be a simple ulcer there is frequently found evidence of ulcer, malignancy has probably been present from the first. Of the two sites of ulcer, gastric and duodenal, the duodenal seemed to the Mayo brothers to be the one less likely to be followed by malignant disease. If malignancy is concealed in what appears to be a simple ulcer at the time of operation, two circumstances suggest themselves. One is that we would expect the cancerous growth to reveal itself sufficiently as to be recognisable within at least two years after the operation, and the other is the advisability of excising simple ulcers. Our experience in the North of England is that malignant disease follows short-circuiting so infrequently as to be discountable. Since there is a discrepancy between British and American experience in regard to this question, there may probably be at work other factors than those which relate only to the operation. The incidence of cancer is, I believe, greater in America than it is in this country. It may be, too, judging from Sir Kennedy Dalziel's experience, that the incidence of cancer among the general population is greater in Glasgow than it is in Edinburgh and Aberdeen, and, if this is the case, the circumstances cannot altogether be ignored as playing a part in the varying experiences of surgeons as regards post-operation gastro-intestinal cancer.

The Risk of Cancer in Recommending Acceptation for Insurance.

The question I submit to you is not alone whether cancer is a frequent after-event at the site of gastro-intestinal operations, but one involving larger issues, such as the insurability of persons who have had operations performed upon any part of the alimentary canal. As regards appendicectomy, for example, there is not the least doubt that a man without an appendix is freer from risks than a man who still owns one, and yet few insurance offices would regard a man who had had a serious internal operation performed upon him as a first-class life. And to some extent there is a reason for this, for the appendix in a few instances has been the seat of cancer at the time of operation, and, but for microscopical examination, might simply have been regarded as an inflamed tube. This circumstance therefore suggests the inadvisability of accepting lives which have been operated upon for appendicitis until at least three or four years have elapsed since the operation. On the other hand, since malignant disease so infrequently follows upon operations for appendicitis, and competition between insurance offices is keen, some examiners might feel disposed to recommend acceptance of the life as early as one year after the operation, if young and otherwise healthy, with an addition, which should automatically decline and disappear after a limited number of years, provided that the health of the applicant has been improved by the operation.

Insurability after Gastro-duodenal Ulcer without Reference to Malignancy.

Reverting to the subject of insurability of persons operated upon for gastro-duodenal ulcer, and in this instance without reference to malignancy, Mumford found in 147 cases of gastro-enterostomy for ulcer of the stomach that in 17 per cent. the end result was "bad." Sir Berkeley Moynihan, drawing his experience from 186 cases upon which he had operated for duodenal ulcer, states that from an insurance point of view 12 per cent. are unsatisfactory; while Graham, taking his figures from the Mayo Clinic, found of 438 patients operated upon for duodenal ulcer and 162 for gastric that 12 per cent. and 20 per cent. respectively were unsatisfactory from an insurance point of view. It is not to be inferred that any one of the patients was the subject of post-operative malignant disease, but that they were simply not improved by the operation. That surgical intervention in gastro-duodenal ulcer has saved many lives and transformed thousands of invalids into active, cheerful, and healthy men and women goes without saying. Sir Kennedy Dalziel informs me that one of his patients 25 years after the operation remains quite well. In one of his patients who died from disease—not of abdominal origin—nine years after operation the pyloric orifice had become almost obliterated, but the duodenum remained patent, and it had apparently been functioning normally. Ninety-five per cent. of the Mayo patients were alive and well at the end of three years. Successful as gastro-intestinal surgery is, we not only still require more data to guide us to a conclusion, but each life must be dealt with on its own merits.

Given an applicant who has been subjected to gastro-enterostomy, whose health is good, and whose physique is in no way injured, I think such a life might be accepted, with a fair addition, for a limited period of years—say, 15 or 20, according to age, family history, and general physical condition, on the understanding that if the applicant survived that period a portion of the extra premium might be returned in the form of a bonus. This might not be quite consistent with the principle of average which is the basis of life insurance. It might be found impracticable to return a portion of the extra premiums to those who had survived and out-reached the 15 or 20 years suggested. On the other hand, would it be fair to saddle the survivors with the burden thrown upon the office by those who died within, say, five years after the operation? I do not know the intricacies of actuarial methods, but is it necessary to create sectional invalid insurance and to load any one section with its own burden, or is it preferable to distribute the risk over the total number of lives insured, after a supposed limit of safety has been reached? One other way suggests itself, and it is to load the life heavily with an extra premium for the first five years, after which, the risk having been covered, the policy might be regarded as normal for the age reached by the insured person.

Discussion.

Mr. **McAdam Eccles** said that gastro-jejunostomy for pyloric obstruction of a simple nature was one of the most satisfactory of gastric operations, and although there should be a loading for the first five years, it might be remitted afterwards provided the "life" remains in good health. Gastric ulcers might heal. He was doubtful as to a duodenal ulcer healing without surgical aid, but he thought gastric ulcers were more doubtful from an insurance point of view because of their liability to malignant disease. Carcinoma at the actual site of the anastomosis in a gastro-enterostomy must be exceedingly rare. With regard to adhesions and intestinal obstruction following abdominal operations, they were liable to occur even after gastric operations. They certainly occurred after appendicular suppuration, and by no means infrequently after hysterectomy. Hence a history of any operation of these varieties should raise the suspicion of possible adhesion and possible intestinal obstruction and the "life" should be loaded in many instances.

Dr. THEODORE THOMPSON said that one very important sequel of abdominal operations had not been given the importance it deserved in Sir Thomas Oliver's paper. The formation of adhesions after abdominal operation was very common and, unfortunately, intestinal obstructions not uncommonly followed. Dr. Thompson examined a case for life insurance recently. Four years before the subject had had a severe operation for an appendicular abscess, but he had been quite well since; in view, however, of the severe nature of the appendicitis five years were added. Six weeks after the examination he was seized with severe abdominal pain and acute intestinal obstruction, the result of an adhesion in the right iliac fossa. Dr. Thompson therefore strongly advised that in cases of appendix operation, where abscess has been present, the "life" should be loaded. He pointed out that not only do adhesions follow appendicular operations and other pelvic operations, but they also occur after operations for gall-stone and gastric trouble.

The PRESIDENT pointed out the importance, from the point of view of insurability, of the freedom from symptoms after the operation.

SHEFFIELD MEDICO-CHIRURGICAL SOCIETY.

AT a meeting of this society held on April 15th Dr. RUPERT HALLAM read a paper on

The Therapeutic Uses of Radium.

After a brief description of the chemical and physical properties of the metal he explained the methods employed in estimating the quantity of radio-activity in the various applicators used in medicine and surgery. The strength of each applicator supplied by the Sheffield Radium Institute is always described in terms of radium metal, and he suggested that it would be a great advantage for the comparison of doses and results if this unit of dose was universally adopted. Although the Sheffield radium purchased in 1915 was primarily intended for the treatment of inoperable malignant disease, it had also been extensively used for the treatment of certain skin diseases. In his experience the results obtained in the treatment of rodent ulcer (providing the ulcer did not involve the bone or conjunctiva) were good. He had latterly employed carbon-dioxide snow in conjunction with the radium, and anticipated a higher percentage of non-recurrences. Thirty-three cases of cavernous nævi treated during the year 1919 had all responded exceedingly well, and he maintained that this method superseded all others. A large number of cases of malignant disease had been treated by the surgeons of the four voluntary hospitals in Sheffield during the last four years from radium supplied by the Sheffield Radium Institute. Sarcoma apparently responded more favourably than carcinoma to the application of radium, and four cases which had been free from recurrence for periods varying from one to four years were shown at the meeting. The results of the treatment of carcinoma of the cervix had been disappointing. In no case of carcinoma of the mouth could improvement be said to have occurred. In conclusion, Dr. Hallam maintained that apparent cure of inoperable malignant disease by radium was exceedingly rare, but that it often relieved pain, lessened discharge, and gave patients a ray of hope.

At the close of the paper several members related their personal experience of the treatment of malignant disease with radium. Dr. MILES PHILLIPS had found it of little value in carcinoma of the cervix. He expressed the opinion that equally good results were obtained by curetting the growth, and he related a case in which this method had been employed and the growth remained quiescent for four years.—Dr. G. WILKINSON described several cases of sarcoma of the tonsil which had responded well to the treatment and were apparently free from disease.—Mr. ARCHIBALD CUFF had employed it in two cases of menorrhagia with satisfactory results.

Reviews and Notices of Books.

A STUDY OF THE LONG BONES OF THE ENGLISH SKELETON.

By KARL PEARSON, F.R.S., and JULIA BELL, M.A. Part I.: "The Femur," Chapters I. to VI., Drapers' Company Research Memoirs, Biometric Series X., quarto, text and atlas, 30s. net; Part I., Section II.: "The Femur of Man, with Special Reference to other Primate Femora," Chapters VII. to X., Appendices, Bibliography, and Indices, Biometric Series XI., quarto, text and atlas, 40s. net. Cambridge University Press. 1919.

IT requires no special knowledge on the part of anyone walking in a London street, where may be met casually all types of all nationalities, to distinguish between a Negro and a Chinaman, an Indian and an Italian, an Englishman and a Japanese, and correctly to identify them. But if the skeletons of representatives of these same races are submitted to an observer, he will have to acquire a special experience before he can confidently express an opinion upon the racial characteristics displayed by the bones Yet, if he sets about his task in the proper way it is possible for the anatomist to arrive at conclusions from the examination of mere bones at least as accurate as those of the man in the street who picks out representatives of living races and correctly "places" them. But it is the method of science to strive after exactness, and the objective expression of its results in figures; and for the last century anatomists have been measuring bones and endeavouring to express in angles and proportions the distinctive peculiarities of individual bones, and the statistical meaning of figures obtained from comparing large collections of bones. The aim of such procedures was primarily to give numerical expression to distinctively racial characters that could be appreciated by the observer: but in course of time most anthropologists came to pay more attention to measurement and less to the appreciation of racial traits. Through sheer laziness they spared themselves the bother of study and observation, and simply recorded the measurements of bones—often made merely by a laboratory servant, and did some crude arithmetical juggling with the figures so obtained. One has only to glance through the pages of any anthropological journal to realise that this is no exaggeration of the state of affairs. But the mathematician then interposed with the claim that if anthropology was a mere question of statistics it was clearly essential that the treatment of the figures obtained by measuring bones should at least be conducted in accordance with the approved methods of statistical science. For the last quarter of a century Professor Karl Pearson's school of biometricians has been showing biologists how figures should be dealt with scientifically, and has been trying to impress upon them that if biology is nothing more than measurement—as much of their writings seemed to suggest—something more than kindergarten arithmetic was needed to extract any sort of meaning from the figures.

Incidentally Professor Pearson has built up a great school of applied mathematics, and has shown biologists how figures should be treated, and how significant are the results that can be obtained by such objective methods, even from the plastic and ever-changing forms and proportions of living beings. The Department of Applied Statistics of the University of London has just entered upon the occupation of the magnificent biometric laboratory provided largely by the enlightened generosity of the Drapers' Company at University College. Professor Karl Pearson has signalised this important event by issuing four large quarto volumes dealing with the femur, the results of a research started more than 12 years ago "merely with the intention of illustrating the application of biometric methods to a special field of anthropometric inquiry." This work marks an epoch in the application of mathematics to the interpretation of the data of anthropometry, and provides invaluable guidance to the anatomist who is set with the task of determining the meaning of one of the classes of the data which he collects.

In his preface Professor Karl Pearson tells us:

> "The earlier stage of this memoir embraces the first five chapters—these chapters are essentially an illustration of the application of biometric methods to the study of a single long bone. With the remaining chapter of Part I. the transition begins, for as we started to study the individual characters of the human femur, we found ourselves led on to consider not only such characters in other races than the English, but also in the anthropoids and ultimately in a wide range of primates."

When Professor Pearson has achieved so vast a reform as the inculcation of truly scientific methods in the domain of biological statistics, it is peculiarly unfortunate that he should have marred this magnificent work and been led into grave errors by his attacks on anatomists and the biological method. While freely admitting that anthropologists who rely upon statistics and argue from figures in a grotesquely inadequate manner fully deserve to have the puerilities of their arithmetic exposed, one cannot be blind to the fact that in trying to carry the war into the anatomists' camp Professor Pearson has himself perpetrated much graver faults in biology than the mathematical lapses he is castigating in the work of the biologists. The statistical method may be particularly valuable for giving exact numerical expression to each character of a bone, for summing up its features, and expressing the extent of its conformity to the group to which it belongs. But it is clear from the suggestions made in this monograph that the biometric method is a hazardous and misleading guide to the interpretation of kinship and affiliation. We shall quote only one instance of the fallacies for which a reliance upon the statistical method must be held responsible, but it is of so flagrant a character as to make one deeply regret that Professor Pearson embarked upon such treacherous seas. He tells us that "accordingly the suggestion may be made that the *Cebidæ* are derived from a form approximating to the Tarsiidean, and the *Simiadæ* from a form approximating to the Lemurine group of the Lemuroids" (Sect. II., p. 314). However great the divergence of opinion may be as to the exact stages through which the descendants of some Eocene Tarsioid form passed to become an ape, all zoologists would unite in repudiating the possibility of a Lemurine ancestry for the apes. In a number of other instances the statistical method yields results that more nearly accord with the facts of biology; but the suggestions expressed in the series of diagrams in the latter part of Section II. make the reader sceptical of the usefulness of a method which can mislead so gravely. These criticisms are necessary lest a reform which transforms anthropometry from the plaything of dilettanti into the severe discipline of a real science should be seriously compromised, as it will be, if it is to be used as a guide to phylogeny, where it clearly is quite untrustworthy.

The authors define their ideas as to the value of biometric methods in anthropology in the following sentences (p. 257):—

> "No form of anthropometry can be reasonably successful in racial differentiation if the measuremental functions do not adequately express changes *in the racial character.* It is the racial character which first appeals to the eye, and it is the business of the anthropometrician to be quite certain before he takes into general use any measuremental function that it really does reproduce numerically the phases of the character he desires to discriminate. ...... [*Statistical work in anthropometry*] is absolutely primary and the only road to safe generalisation. When the statistical and the appreciative methods are placed side by side, the former being based on fitly chosen measuremental functions, there cannot be for a moment a doubt as to which will give the better results—that is *evidenced in every case by the ultimate appeal of the appreciative* anthropologists to the very statistical methods—generally imperfectly handled—which they started by endeavouring to discredit."

But in making these claims the biometricians seem to forget that the aims of the statistical and the appreciative methods are not identical. Each method provides information which is complementary to that afforded by the other, and it is futile to call one primary and the other secondary unless the precise object of the work is clearly and specifically defined. Take, for example, the case of the anthropologist who is working in conjunction with an archæological party. His function is to estimate the age and determine the sex of the remains; to decide whether the body has been subjected to post-mortem treatment of any kind and, if so, to investigate its nature; to record the position of the bones and to decide whether displacements are due to the action of gravity in a decomposing corpse and, if not, what the significance of the disturbance is; to study peculiarities of structure, whether they are due to congenital causes, injury, or disease; and, finally, to form an appreciation of the distinctive individual traits of the body and assess their racial, social, and other significance. These are aims that do not come within the scope of the statistician's functions, which are to assess the degree of conformity of this individual with groups of similar remains of known age and provenance. It is merely quarrelsome to insist that one of these functions is of primary and the other of secondary importance.

Putting aside these defects, into which the authors have been led by a not unnatural wrath aroused by slovenly work on the part of certain anthropologists, we can only admire the vastness of the scheme of work suggested by this great monograph and the thoroughness with which the enormous labour of expressing in figures the femur's distinctive features has been carried out. After working through this formidable array of mathematical learning the reader feels that there is still a good deal of the femur's character that is not expressed in the figures. For the bone is part of a living organism in a perpetual state of flux; it is constantly being rebuilt and refashioned in accordance with a multitude of factors that cannot be expressed merely in figures. Professor Karl Pearson is to be congratulated on the excellence of the two volumes of plates, and the way in which the volumes have been produced.

MEDICINE AND THE ALLIED SCIENCES.

By SAMUEL FOMON, Ph.D., M.D., Major, Medical Reserve Corps, U.S.A. London and New York: D. Appleton and Co. 1919. Three volumes and key with desk index. Pp. 2684. £5 10*s*.

THIS is a text-book—or rather a compendium of many text-books—presented in an original way for the benefit of the student whose memory, it is hoped, will be systematised by its use. The method consists in giving "general outlines" in the form of central memorisable data around which the special peculiarities of each subject can be grouped. The advantages claimed are as follows: (1) To convey in the briefest time-saving manner all that is known about a given subject; (2) to impress such knowledge upon the reader's memory in logical sequence and to show the inter-relations of all divisions of medical study; (3) to instruct a student how to weave together these various facts into a complete study of each disease and its treatment, whether it be medical or surgical. The compilation has evidently been a labour of love to the author, and to those who in their early days found delight in Mr. Bradshaw's correlation of times and events will make a successful appeal. But to the mind that lives not by ratiocination alone these three bulky volumes may prove a little burdensome. The text and illustrations are clear, there are some useful lists and tables, and every medical library would find the book useful for reference.

ORIGINE, EVOLUTION ET TRAITEMENT DES MALADIES CHRONIQUES NON CONTAGIEUSES.

By J. DANYSZ. Paris: J. B. Baillière et Fils. 1920. Pp. 132. 5 francs.

IN this short monograph the author sets forth the theory that certain chronic non-contagious diseases such as urticaria, asthma, and the like, are due to the presence of a protein antigen in the intestine, and that the treatment therefore should be carried out on anti-anaphylactic principles. The first part of the book consists of a short, simple description of the phenomenon of anaphylaxis and the theories of mechanism and causation. The second part deals with a series of cases treated by the author, starting from the standpoint that the diseases in question are due to an error of metabolism, in which the intestine fails to deal naturally with albuminoid substances and bacterial proteins, and in which, therefore, a protein antigen is assumed to be present The author s method of treatment is a course of subcutaneous inoculations of autogenous or stock mixed vaccines of intestinal bacteria, including coliform bacilli, enterococci, unidentified diplococci, and streptococci There are 260 cases recorded They include cases of urticaria, eczema, psoriasis, asthma, neurasthenia, albuminuria, dysmenorrhœa, menopause, mucous colitis, intestinal toxæmia, dyspepsia constipation, chronic rheumatism, in fact, most of the heterogeneous collections of obstinate chronic complaints which are generally associated with neurotic individuals The third part of the book deals with immunity in relation to anaphylaxis

Unfortunately, vaccine therapy will not cure all the chronic illnesses of man, and we have so frequently been disappointed in the past that we have learnt to adopt an attitude of suspicion, though we shall watch the course of this treatment with much interest

A TEXT BOOK OF INDIGESTION

By Dr G HERSCHELL Fourth edition, revised and rewritten by ADOLPHE ABRAHAMS, O B E, M D Camb, M R C P London Edward Arnold 1920 Pp 228 10*s* 6*d*

THE first 68 pages of the late Dr George Herschell s book, which has been remodelled and rewritten, deal with the process of normal digestion, the nature and causation of indigestion, and the investigation of the patient The latter includes the usual routine examination, also all the modern methods of investigation—intragastric technique, test meals, X ray examination, examination of the stools—and one is particularly glad to see that the inquiry into the history and symptoms of the patient receives special attention A short account is thus given of the subject the matter being well selected and described A consideration of organic diseases of the stomach then follows This is an addition to the volume, former editions dealing only with functional disorders It is disappointing to find that they are treated of in a short and sketchy manner more reminiscent of a text book of general medicine than of a special treatise on the stomach, so that the alteration hardly seems to be justified However, a considerable amount of useful information will be found, more particularly in the sections devoted to treatment All forms of functional disorder are regarded as of nervous origin, except "acute indigestion,' which may be due to the ingesta in a normal individual, or otherwise occurs in an exhausted subject, or one suffering from "congenital relative hepatic insufficiency" The classification of nervous indigestion is that usually given in text books Gastric atony and gastroptosis are both described under the heading of "sensory disturbances,' which is no doubt an oversight Pancreatic indigestion and gastric disturbances due to disease outside the stomach are shortly referred to The appendix on the preparation of foods remains substantially unaltered

EVENING PLAY CENTRES FOR CHILDREN

By JANET PENROSE TREVELYAN London Methuen and Co 1920 Pp 182 5*s* net

PERHAPS Mrs Humphry Ward s most abiding work consisted in her wide eyed sympathy for the London child From the Passmore Edwards Settlement in Tavistock place the movement for starting schools for invalid children originated as well as this fruitful idea of evening play centres Dealing mainly with the beginnings in London, Mrs Trevelyan also describes the impetus given by recent official recognition and grants to the movement throughout the country Chapters on vacation schools and organised playgrounds also sketch these cognate and important topics We are shown how the out-of school education of the city child may be of greater social importance than its academic curriculum The need merely to relieve existing miseries of childhood is very pressing A care committee of South London stated (p 29) that it had carefully investigated the cases of 100 children from one school, and that 67 of these were found locked out of their homes till 7, 8, or even 9 o clock at night And of these 67, one third were under 7 years of age This was borne out by an appeal received from the owner of a jam factory in the same district, who offered to defray part of the cost of a play centre, if it could be established near his works, because the children used to come down to the factory gates in the evenings and cry till their mothers came out The successful teaching of these little vagabonds is related —how steadily and with great perseverance social responsibility and the need to play the game by their neighbour was woven into their conscience Attendance being purely voluntary, the children go because they want to do so An evening s exclusion is a punishment for the unruly or disobedient When we read of one centre (Stepney) attracting an attendance of over 1100 in an evening it is evident that someone was putting in effort and cost, but it was only after 20 years, as the book records, that London awoke to the fact that the playtime of her children was her own concern Now half the cost is borne by the Board of Education and half the remaining cost by the London Authority so that one quarter of the money spent in this movement has still to be found by voluntary effort The movement has a wide public future before it towards recreational development for the whole community The schools are destined to become social centres of the greatest importance in national economics, for play is nature s education of the senses and emotions Here especially is there the opportunity for moral training The neglect in cities cannot be allowed to persist That way lies social unrest.

The book will be widely read and deserves careful study What Mrs Ward in the preface says of London —that there are 32 centres in being and 200 needed—applies with equal force to the rest of the country in both its urban and its rural districts

JOURNALS

British Journal of Children s Diseases Vol XVII January March Edited by J D ROLLESTON M D —In a paper entitled 'Some Observations on the Medical Treatment of Infantile Paralysis ' Dr Charles Mackay emphasises the importance of early diagnosis in the treatment of this disease In the early stages he condemns massage and electricity as not only useless but harmful and recommends immediate and complete anatomical rest for the paralysed muscle He considers that muscle re education should not be begun until pyrexia pain and tenderness have ceased and should be continued for the next two years at least —Mr T H Gunewardene reports a case of Leukæmia with Scalp Nodules, with a description of the post mortem examination —In an article on Preleukæmia in Infancy Dr Gordon Ward gives an account of the condition described by Professor Martelli of Naples This writer has given the name of preleukæmia to a large class of cases sometimes denominated von Jaksch s disease sometimes leukanæmia or pseudo leukæmia or secondary leukæmia and characterised clinically by anæmia and splenomegaly According to Professor Martelli these cases are potentially leukæmic and if the disease is not checked by treatment may die of leukæmia The preleukæmic condition may rise from several factors such as syphilis tuberculosis sepsis, or malaria acting on an inherently defective organism Dr Ward however is of opinion that the unknown cause of leukæmia in the adult never produces anything but leukæmia in the child and that the cause of preleukæmia in the child will never produce the adult form of leukæmia even in the adult —Dr W J Rutherfurd reports a case of Cardiac Angina in a child of 6 years the anginal attacks being due to pericarditis and has collected other instances from literature There was no history of rheumatism or chorea in his case —In a paper on Some Clinical Forms of Typhus Fever in Children Dr A Stroe of Bucharest states that typhus in children is generally mild its duration being usually from 7 to 12 days In 25 per cent of the cases the eruption is absent, in other cases it is transient or very sparse In some cases however especially in children over 7 years of age the exanthem presents the same characters as typhus in the adult Bronchitis is frequent but areas of congestion are exceptional in children Signs of profound intoxication are extremely rare The diagnosis may thus present great difficulties, but considerable help is afforded by the Weil-Felix reaction.—Dr. T. McCririck reports a case of Tuberculosis Verrucosa Cutis of the Foot in a boy, aged 12, who had probably been infected by his sister, who was suffering from multiple tuberculous abscesses.—A case of Isolated Disease of Tarsal Scaphoid: Köhler's Disease, is recorded by Mr. P. Maynard Smith.—A case of Congenital Redundant External Meatus; Repeated Abscess-Formation; Excision, is related by Dr. Dan McKenzie, who has been unable to find more than eight other cases on record of this congenital malformation. In the majority the orifice and external meatus are described as being divided by a septum or partition into two canals, one of which ends blindly, while the other leads to the tympanic membrane. Abscess formation does not seem to have been encountered in any previous case.—The abstracts from current literatnre are devoted to acute infectious diseases and dermatology and syphilis.

Reports and Analytical Records

FROM

THE LANCET LABORATORY.

COLLOSOLS.

(BRITISH COLLOIDS, LTD., 22, CHENIES-STREET, LONDON, W.C. 1.)

COLLOIDAL preparations are increasing in interest from the therapeutic point of view, it being freely claimed that the usual medicaments are more effective when presented in the form of a "sol." This conclusion is based on the fact that the vital processes of the organism are colloidal. The medical profession have now to deal with the claims set out. There are several preparations at their disposal for such an inquiry, as is evidenced from the specimens of "sols" recently submitted to us by the above company, which include collosol quinine, iodine, argentum, sulphur, and manganese. The chemical behaviour of these preparations is peculiar. They do not respond in some instances in the way that the classic salts do, and, we imagine, would give much trouble to the student asked to determine in an examination what active constituent (metallic or non-metallic) was present. With well-recognised reagents, for example, the colloidal preparations of the metals give negative or confusing results. The colloidal state must be got rid of before the normal reactions of ordinary salts can be obtained. This, of course, shows that a different physical condition exists when the element is in the colloidal form. Colloidal quinine, for example, is not immediately bitter to the taste, nor does it give a fluorescent solution when sulphuric acid is added. Collosol argentum does not yield the usual precipitate of silver chloride when hydrochloric acid is added, though chloroform takes out some iodine from collosol iodine, and caustic soda and a lead salt present with collosol sulphur soon yields a conspicuous darkening due to formation of lead sulphide. The therapeutic advantages suggested by the use of "sols" are of interest, and the claim that the activity of the medicament is greatly increased, requiring a much smaller administrative amount for a definite effect, will attract attention. So far as we know, there is no evidence as to the fate of the "sol" in the gastric or intestinal secretion. Should there be any reversion the view of the increased therapeutic efficacy of the "sol" could hardly be sustained. These preparations afford an interesting study under the ultra-microscope, and medical men are invited to inspect recent innovations in this direction.

NUTRESCO PREPARATIONS.

(NUTRESCO, LTD., NUTRESCO HOUSE, DOLBEN-STREET, BLACKFRIARS, LONDON, S.E. 1.)

The foundation of the "Nutresco" products is meat substance hydrolysed by a special and improved process. Nutresco is thus sharply differentiated from meat extractives, and in fact consists chiefly of albumoses and peptones. The product is contained in several preparations, including a malt combination, a syrup, an invalid food, chocolate, biscuits, and wines. The fluid preparations turn solid when bromine water is added, proving the presence of a high proportion of proteoses, and the wines gave a big precipitation with the same reagent. The malt admixture showed marked diastasic action, and the invalid food on analysis gave the high figure of 24·0 per cent. of proteins, due to both casein and digested meat substance. The chocolate contained, according to our analysis, 10·0 per cent. of protein. These preparations are correctly described, and offer a choice of special nutrient material to the medical practitioner.

(1) COD-LIVER OIL; AND (2) FRUITINE CONFECTION.

(ALLEN AND HANBURYS, LTD., BETHNAL GREEN, LONDON, E.)

1. There has, of course, been some disturbance during the war in regard to the supply of cod-liver oil, and it is of interest to note that the normal supplies are being restored, and the above firm announce that their "new season's" (1920) oil is of good standard quality, and that the livers are yielding rather over the average percentage. The oil contains the maximum amount of unsaturated fats and the minimum of free fatty acids. The sample submitted to us certainly shows a high standard, and the vendors have probably satisfied themselves as to its growth-promoting constituent (the fat-soluble factor). 2. The "fruitine confection" has a well-known laxative fruit basis, and is free from artificial purgatives. It is quite pleasant to the taste, and infants and young children, we are informed, show no objection to taking it. In preparation care is taken to preserve the accessory factors of the fruit intact.

AMBRIODIN (CENTAUR).

(THE CENTAUR CHEMICAL CO., LTD., BASSISHAW HOUSE, BASINGHALL-STREET, LONDON, E.C. 2.)

We have confirmed the composition of this compound which contains ammonium bromide (5 gr.), potassium iodide (1 gr.), combined with a laxative. The formula is well known to medical men as of use in bromide treatment, but the tablet offers a convenience in administration. Advantages are claimed in the treatment of epilepsy by this combination as opposed to the exclusive use of potassium bromide.

DOLS' (VOLATALISE) FLANNEL.

(DOLS AND CO., LTD., HUDDERSFIELD.)

There is some novelty in the suggestion of the application of this fabric as a therapeutic measure. It is purely and simply flannel impregnated with a certain iodine compound which yields iodine to the affected part, particularly when in contact with a moist skin, as during exercise. Claims are made in favour of its employment in the alleviation of the pains of rheumatism, lumbago, and injured muscles. It will be interesting to receive an endorsement of these claims, but, at all events, iodine is recognised as a factor in relieving the class of disorders referred to, and the method of application suggested is convenient. The flannel is of a dark-brown colour and readily yields iodine on treatment with nitric acid.

MABELA.

(GOVERNMENT OF THE UNION OF SOUTH AFRICA, 90, CANNON-STREET, LONDON, E.C. 4.)

The analysis of this product was as follows:—

	Per cent.		Per cent.
Moisture	9·60	Fat	2·40
Mineral matter ...	1·60	Fibre	5·64
Protein	10·97	Sugar	2·69
Carbohydrates ...	67·10		

It is prepared from a seed grown in Natal known as mabela, which seems to be identical with millet. Locally the raw material is known as Kaffir corn, which has been used largely for the manufacture of beer. This beer has antiscorbutic properties, according to a report on scurvy in South African Native Labour Corps by Dr. Hamilton W. Dyke, published in THE LANCET of Oct. 19th, 1918. Large draughts of Kaffir beer, according to this report, conferred an immunity from scurvy upon the Kaffir troops. Germinating seeds are known to contain antiscorbutic materials. The meal we examined shows nutritive properties from a chemical point of view, but according to this examination it does not disclose an advanced malting stage, since the soluble matter in cold water only amounted to 5·75 per cent.

THE LANCET.

LONDON: SATURDAY, MAY 15, 1920.

A Dual Alliance against Venereal Disease.

EARLY in 1917 the Borough of Portsmouth opened a clinic for the treatment of persons suffering from venereal diseases, which has since been enlarged and is generally admitted to be doing good work. In February last Dr. A. MEARNS FRASER, medical officer of health for the Borough, presented to his Health Department a special report on means for the prevention of the same diseases. The chief duty of a sanitary authority is, as all will agree, preventive rather than remedial. In this able and, in parts, moving little pamphlet Dr. FRASER set forth the case for prevention, and concluded by recommending his local authority to take the necessary steps to spread a knowledge of the means of self-disinfection, so that those who insist upon satisfying their sexual appetites by promiscuous intercourse should be in a position to protect themselves, and possibly their innocent families, against loathsome disease. On March 3rd the *Portsmouth Health and Housing Committee* approved and adopted Dr. FRASER'S report and decided to urge the Council to empower them at once to act upon it. On April 27th the Council itself confirmed this decision, and the principle of popularising the methods of venereal prevention among the male population is now the official policy of the municipality of Portsmouth.

Where others have discussed Portsmouth has acted. The manifold difficulties and objections raised by both parties to a warm controversy have been more than sufficiently studied during the last few months. Some of the objections have been too much in the nature of Aunt Sallies stuck up expressly to be knocked down by cogent and clever argument. Advocates of self-disinfection are apt to assume as prevalent among their opponents the mediæval view in favour of retaining disease as a method of enforcing chastity. No responsible body of thinking people now takes this view or regards fear as a useful deterrent from venereal infection. Many of the opponents of self-disinfection profess to see nothing in it but the issue of prophylactic packets from an automatic machine. Setting aside bogies and bugbears, there remain two difficulties keenly felt by many who are not fanatics in regard to popularising self-disinfection. The first is in essence that in so far as the male genital tract is relatively easy to disinfect, and the female relatively difficult, to advocate self-disinfection is to set up that different moral standard as between men and women against which it is increasingly the spirit of the age to protest. It is said that to advocate a method of disinfection applicable only to men is to revive the spirit of the ill-famed C.D. Acts; in a word, to make fornication safe for men. To this it may be replied that whereas to fix a different moral standard is wilful, the anatomical difficulty is not of our own seeking, is at present inevitable, and is to be overcome by improvement in technique. Illustrations do not carry us far, but the analogy might be suggested of an armoury in which the curator, unable, as he would like, to enforce perfect orderliness on those using it, should yet insist that swords be cleaned after use in case they should be put back in the wrong scabbards. And in the end the scabbards would remain clean. The other real difficulty, also of a fundamental and reasonable nature, is felt by those who fear the effect of prophylactic propaganda upon the mind of the young man or woman growing up to the consciousness of virility and sexual potency. How can information be conveyed for making promiscuous intercourse safer from risk of infection without suggesting to the adolescent that his sanitary authority expects him to be clean but not continent? This is a crucial point to which earnest groups of seekers have devoted attention without as yet finding a solution of wide acceptance.

Portsmouth has cut the Gordian knot. Before the Council meeting all the omens were unfavourable to the acceptance of Dr. FRASER'S report except by a bare majority and in a controversial atmosphere. Wisely construing his duties as chief magistrate and first citizen, the Mayor of Portsmouth called a meeting at which the various conflicting interests were represented and which was addressed by Dr. FRASER. The reasonableness of the proposals struck home, and after very full discussion the supporting resolution (no formal vote was in order) was proposed by the Rural Dean, seconded by Bishop INGHAM, and supported by the President of the Free Church Council. With one corollary: that along with the municipal action in the domain of hygiene, there should run concurrently a voluntary campaign to promote chastity. Evidently some of those present at the meeting were not satisfied that they had done all that they could in social, educational, and moral directions. Dr. FRASER'S demand for a hygienic campaign undoubtedly precipitated a moral campaign. For the statistician this may be unfortunate, as the moral campaign will invalidate the hygienic as a scientific experiment. But for all other thinking people the prosecution of the two campaigns side by side may well suggest a solution for one of the most pressing problems of civilisation.

The Cæsarean Scar.

SINCE the magnitude and exhaustive nature of the task achieved by Mr. EARDLEY HOLLAND is only faintly reflected in the brief abstract of his paper at present available, the genesis of the discussion on Cæsarean section at the joint meeting of Obstetrical Societies, reported on pp. 1062–68 of this issue, may be recalled. In a letter dated Feb. 10th of this year, addressed to obstetric surgeons in active hospital practice throughout the country, Mr. HOLLAND sought the coöperation of his colleagues in an attempt to obtain definite information on the risk of rupture of the uterine scar after Cæsarean section. In order to ensure a uniform plan for this collective investigation he enclosed sample tables compiled from his "follow-up" records of cases from the London and City of London Maternity Hospitals under these headings: (1) Indication for and year of operation; (2) age of the patient; (3) her parity; (4) period of pregnancy or labour when Cæsarean section was performed; (5) the type of uterine incision; (6) the site of the placenta; (7) the method of suture and material used; (8) the presence, absence, or degree of pyrexia during convalescence; (9) the interval in years since the operation; (10) the condition of the infant; (11) whether precautions against pregnancy had been taken.

The 84 cases of Cæsarean section recorded in the sample tables, from which were excluded sterilised and fatal cases and those in which the first Cæsarean section had been performed before 1912, were divided into six groups. One group contained 49 cases who had no subsequent pregnancy, though unsterilised; another, 10 patients whose subsequent pregnancy culminated in delivery by the natural passages; a third included 15 cases who had repeated Cæsarean sections. Then followed 5 cases who aborted, 4 now pregnant, and 4 (a fifth case since recorded is included in Mr. HOLLAND'S account) whose scar had ruptured. Three cases appeared in more than one category. These were the figures given by Mr. HOLLAND in his original questionnaire to intending collaborators, where he suggested that these results, as far as they go, would seem to show: (1) that Cæsarean section is followed by relative sterility; (2) that rupture of the scar, though relatively rare compared with the number of Cæsarean sections, is not so rare when compared with the number of patients who subsequently become pregnant and go to term, and especially with the number in whom delivery by the natural passages occurs. So cordial was the response of the obstetric surgeons (one had himself traced out and visited 30 cases) not only in supplying material but in arranging it on the lines suggested, that Mr. HOLLAND was able to incorporate in his opening address figures received only a short time before its delivery.

The need for the investigation cannot be doubted. The discussion on the treatment of ante-partum hæmorrhage in the morning session of the same meeting showed clearly the increasing tendency to regard as indications for Cæsarean section conditions, such as eclampsia and placenta prævia, that may not recur. In these circumstances the dictum, "Once a Cæsarean section, always a Cæsarean section," quoted by one of the speakers, is open to question, provided the scar can be relied on to stand a subsequent labour. It was on the factors undermining the strength of the scar that the discussion chiefly turned. Professor MUNRO KERR advocated an alternative in position and direction to the classical uterine incision. Mr. HOLLAND regarded the material used for its suture as of primary importance, and though the number of actual ruptures is small the case against the catgut suture for this purpose seems strong. Reference to the discussion will show that most of the speakers were agreed on this point. A suggestion by Dr. J. D. BARRIS that in cases of doubtful asepsis with a febrile puerperium the scar should be excised at a later date deserves consideration in the rare cases in which a woman is sufficiently anxious for another child to submit thereto. No amount of reassurance by a doctor can really remove the terror of the word operation, aroused even by a suggested incision of an abscess. In this connexion the "unexplained" relative sterility after Cæsarean section seemed to cause surprise among some members, to whom this form of delivery appears a commonplace. The psychological cause emphasised by Dr. CARLTON OLDFIELD and Dr. FURNEAUX JORDAN surely affords sufficient explanation.

A very useful practical point emerged from the drawings of sections of ruptured scars shown by Mr. HOLLAND. In every case the muscle had retracted, and the scar consisted of fibrous tissue covered by peritoneum outside and endometrium inside. It is in these thin scars, which follow infection of the wound, that rupture is liable to take place. The old ununited muscle surfaces, covered by decidua and blood clot, are deceptively thick in the recently emptied and retracted uterus, and operators were warned by Mr. HOLLAND from his own experience not to mistake them for freshly torn surfaces and suture them together as being such. Only by a careful study of Mr. HOLLAND'S inquiry will its real importance become apparent. Certain members expressed regret that he had not gone two years further back and thus joined his figures to those collected by Dr. AMAND ROUTH in 1910. The connecting link may yet be supplied, but it would be ungrateful to expect still more back records from an observer who has, moreover, given excellent reasons for his self-imposed restrictions in scope. Even were his statistics of less intrinsic importance they would be of value as a model for collective clinical investigations which might with advantage be carried out in every branch of medicine and surgery.

Red Cross and the Voluntary Civil Hospitals.

A PUBLIC appeal is imminent emanating from the Joint Council of the British Red Cross Society and the Order of St. John of Jerusalem in England, supported by a general survey of the hospital situation throughout England and Wales written by Sir NAPIER BURNETT. It may be remembered that at the beginning of this year Sir ARTHUR STANLEY, presiding over a meeting held at St. Thomas's Hospital, of which charity he is the honorary treasurer, promised that the Red Cross Society and the Order of St. John would make the assistance of voluntary hospitals part of a great peace programme; and the survey which Sir NAPIER BURNETT has written proposes to show the volume of work done by the hospitals and their present financial position as a justification for the distribution of funds. The survey, as far as it at present goes, will not take the London voluntary hospitals into consideration, for they have the assistance of such great central organisations as King Edward's Hospital Fund for London and the Metropolitan Hospital Sunday Fund, among others; and there is a further fitness in this limitation, that the critical position of the metropolitan hospitals is already under the favourable consideration of the Government.

The survey, we are informed, will show the amount of work done during the year 1919 by each individual hospital and the income and expenditure and annual cost per bed, while spot maps will indicate the *locale* of the hospitals and the ratio of their beds to the surrounding populations. Upon such data the Red Cross Society and the Order of St. John will give their help, and a bold appeal will be made to the public for a sum of £1,000,000 per annum to be distributed in the form of grants supplementary to the individual efforts of the hospitals themselves. That this would be the policy shortly to be pursued has already been indicated in the columns of THE LANCET, and it is indicative also of what is known to be the intention of the Government in future legislation in respect of medical services. The magnificent work of the voluntary hospitals is to be supplemented and not supplanted.

It must be known that one way in which the charities might have helped themselves is economically barred. The depreciation in their invested funds is such that the sale of securities can be a wise one only in very exceptional circumstances. Any general realisation of these funds would mean a vast aggregate loss to the charities, as is shown in Sir NAPIER BURNETT'S scheme by the figures relating to a group of nine voluntary hospitals. We may be certain that the position indicated by these figures is typical of the story that many a hospital treasurer could tell.

The text of the scheme will be published in THE LANCET next week, and will, in the meantime, be in the hands of our readers as it appears in the daily press. We believe that they will agree with us in thinking that the cause of the hospitals will prevail with the public. Given a well-informed and sound scheme, the public will certainly come to the aid of the voluntary hospitals, whose work, be it understood, cannot possibly be wholly replaced in spirit or in scope by any State effort, though the needs of the sick and injured can be ministered to by money coming from the State, from the municipality, or from both.

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The Fellowship of Medicine.

THE Fellowship of Medicine is conducting a propaganda which is reaching into many of the largest medical centres, and the result has been a steady flow of inquiries regarding the possibilities of medical study in London, especially from Canada and the United States. This shows an interesting development of possible activities. The medical men who attended, and sometimes crowded, the courses arranged by the Fellowship in last year's session were chiefly serving in the armies; they were brought together in exceptional circumstances, and, in some instances, their military obligations dictated their post-graduate work. This season the graduates are entering the courses on their own initiative, and at their personal expense. Their number is still a matter of speculation with the executive, but each week, we are informed, adds names to the register. It cannot be too strongly insisted that the future of London as a great post-graduate centre will be largely determined by the opportunities offered to overseas visitors during the immediate future. The first call is, of course, for clinical demonstrations, and particularly for short intensive courses in special subjects, and we trust that these will be arranged without delay, for the greater the preliminary notice the easier will it be to answer the questions of inquirers, to complete lists, and to ensure order in the arrangements. A time-table should also be drawn up to cover the holiday season. Work slackens in London from the middle of July to the end of September; yet it is during this vacation period that many men will fit in a course of study, as is shown by the dates specifically mentioned in letters of inquiry. We hope that the enthusiasm behind the movement for making London a great post-graduate centre will be maintained; it received such a good send-off that the danger of relaxation of effort on the part of its supporters must be guarded against. The more energetically the organisation is befriended at the first the more sure will be its complete success in the near future. The English-speaking post-graduate wants to come to London for his studies, and his capital city should give him what he needs.

Annotations.

"Ne quid nimis."

THE DINNER TO SIR GEORGE MAKINS.

A COMPLIMENTARY dinner to Sir George Makins, President of the Royal College of Surgeons of England, and lately consulting surgeon to the British Expeditionary Forces, was held at the Wharncliffe Rooms of the Hotel Great Central on Monday evening last, Sir Cuthbert Wallace presiding. The large company was representative of the many directions in which Sir George Makins's learning, industry, and powers of organisation have been employed for the public good. His colleagues on the staff of St. Thomas's Hospital were there in force; Sir John Goodwin, Director-General of the Army Medical Department, and Sir James Porter, late Director-General of the Naval Medical Services, represented the long connexion with the two Services; Sir John Bland-Sutton was present not only as a personal friend but as Vice-President of the Royal College of Surgeons of England, which corporation was also represented by Mr. S. F. Cowell, the secretary; Sir Walter Fletcher for the Medical Research Council, Sir John MacAlister for the Royal Society of Medicine, Dr. Alfred Cox for the British Medical Association, and Mr. F. G. Hallett for the Conjoint Examination Board of the Royal Colleges, were also present with many professional leaders, brother officers, and personal friends. Mr. Max Page acted as honorary secretary to a thoroughly successful dinner.

The toast of the evening was given by Sir Cuthbert Wallace in simple terms of great intimacy. As pupil, as assistant, as hospital colleague, and as comrade in two great wars he was able out of personal knowledge to construct a telling picture of his friend and chief. The toast was seconded in four directions. Sir John Goodwin bore testimony to the enduring industry and unfailing tact of Sir George Makins in dealing with service problems and in conducting service work. Mr. E. F. White presented Sir George Makins as a model consultant for the general practitioner and for the patient alike, being wise, helpful, and generous. Sir John Bland-Sutton spoke of long association with Sir George Makins in promoting the study of clinical pathology, while assuring the audience that no one had ever better filled the dignified post of President of the Royal College of Surgeons of England. The last of the seconders was Sir George Savage, who appeared in the character of Sir George Makins's instructor in mental science and in the arts of fishing and mountain-climbing, and who gave a humorous sketch of life at Bedlam some 40 years ago. The proposer and the four seconders, though speaking from deliberately different points of view, managed to compose one portrait of a highly accomplished, determined, and sincere man, and to do this without any of the usual exaggerations. Even among a gathering largely composed of personal friends, Sir George Makins found it difficult to reply to such embarrassing and straightforward testimony to his merits; but he may rest assured that what was said of him at the complimentary dinner accords with what his professional brethren at large have for a long time said, and felt.

SOLUBLE LEAD IN CASSEROLES.

REFERENCE has already been made in THE LANCET[1] to the subject of soluble lead in casseroles made of glazed pottery ware. A number of these casseroles have now been examined, including specimens of French, English, and Dutch makes. With the exception of two makes, which were described as leadless glaze, all the casseroles yielded some soluble lead on boiling with a 1 per cent. solution of citric acid. The amounts of lead extracted varied from 0·3 to 19 mg. of lead monoxide per square decimetre of the glaze. The lead was not completely extracted by the first treatment, but continued to be extracted with each subsequent treatment. Some determinations were also made of the amount of lead extracted when fruit and vegetables were cooked in the casseroles. The results confirmed those obtained with the citric acid solution, and we hope to publish shortly the full details of the inquiry which was made at the Household and Social Science Department of King's College for Women by Miss Helen Masters.

ROYAL INSTITUTE OF PUBLIC HEALTH: THE CONGRESS IN BRUSSELS.

THE final programme of the Congress of the Royal Institute of Public Health, to be held in Brussels from Wednesday, May 19th, to Monday, May 24th, has now been agreed upon, and it is clear that the proceedings will be interesting and instructive. His Majesty the King of the Belgians will be present at the inaugural meeting on Thursday, at 11 A.M., in the Palais des Académies. A meeting of reception will be held in the same building on Wednesday, at 9 P.M., by the committee of organisation, to which delegates and members will be cordially welcomed. The executive of the Congress regret that owing to the shortness of time it has been impossible to send individual intimations.

MEDICAL PRACTICE IN NORWAY.

WE have received from a correspondent in Norway an account of a recent session of the Storthing at which the introduction of certain estimates for the coming Budget was made the occasion for a general review of the state of medical practice in town and country. The discussion centred about a supplementary vote of Kr.25,000 towards the pay of State medical officers, and the alternative of a vote of Kr.40,000. This was rejected, and the original sum of only Kr.25,000 was passed by a large majority. Judged by figures alone, this incident might be regarded as one of minor parochial interest; but it is significant as an index of the sentiments of the country towards the medical profession. Since the introduction of compulsory insurance against sickness, and the adoption of the principle of remuneration according to work done instead of by annual fixed sum for each insured person, there has been a considerable increase of material prosperity in the medical profession. Only in a few instances has the principle of payment according to work done been abused by medical men who have made much out of minor ailments. On the other hand, this principle has been an admirable incentive to conscientious treatment of ailments which were apt to suffer neglect under the old system of club sickness insurance. But the point on which the community at large is most at variance with the medical profession seems to be the neglect of country districts in favour of the towns, where every medical man can make a livelihood, even though the supply of doctors is in excess of the demand. Many large country districts, on the other hand, are left without any medical aid, although substantial grants by the Government and local authorities are made. It was pointed out in the Storthing that out of 150 new appointments in country districts, about 50 were vacant for want of applicants. Various remedies for this uneven distribution have been suggested, and Labour and Socialists have advocated the plan of financing the education of medical students who would, when qualified, be bound to serve an apprenticeship of so many years in the least populous country districts. But the more popular view seems to be that the system of subsidies should be strictly limited, and that by the automatic action of the law of supply and demand matters will soon right themselves. Already it appears that the improved economic status of the medical profession has resulted in a large influx of medical students to the University of Christiania, and it is anticipated that in a few years there will be no shortage of doctors in Norway.

THE ACTIVATION OF WOOD CHARCOAL.

AN important communication to the Chemical Society made recently should not escape the notice of active workers in the physiological and chemical laboratories, inasmuch as the use of charcoal as an absorptive, decolouriser, and clarifier, helps research work in so many directions. The authors, James C. Philip, Sydney Dunnill, and Olive Workman, have confirmed the observation that the absorptive power of wood charcoal is notably increased by prolonged heating, an observation which occurred in the course of investigations aiming at the improvement of defence against poison gas. Further experiments are in progress, but, so far, it has been easily established that the increase in the absorptive power of wood charcoal for gases effected by continued heating of it is paralleled by a marked increase in the power of the charcoal to remove methylene-blue from its aqueous solution. Further, animal charcoal, contrary to general belief, possesses no advantages over wood charcoal, and the activities of animal charcoal are even surpassed by a heat-treated wood charcoal. It is remarked that the decolourising power of a charcoal appears to be primarily determined by its physical structure and its surface development, and not by the presence of any specific admixture. Nitrogen and ash are ruled out as playing any part in the absorptive power of charcoal. Apart from gas absorption, a sample of vegetable charcoal was found to remove only 1 per cent. of methylene-blue from the standard solution employed, but the same charcoal heated for 20 hours at 870° C. removed no less than 45·4 per cent. of the dye. Similarly it is concluded that the efficiency of animal charcoal is a function of the heat treatment it has received, and can be increased to a very notable extent. Thus a sample of animal charcoal which removed 17·8 per cent. of methylene-blue from solution before heating, removed 69·6 per cent. after being heated for 18 hours at about 800° C. We remember in our student days the lecturer on chemistry, in demonstrating the absorptive powers of charcoal, insisted upon the incineration of cocoanut shell in a crucible filled with sand some hours before the lecture experiment. As a result he always succeeded in showing practically the complete absorption of ammonia gas. A tube over mercury was filled with ammonia gas, and then a few pellets of the freshly-prepared and heated charcoal were introduced. The mercury rose rapidly to the top of the tube, and there was practically no gas left. This property of charcoal was subsequently utilised by Sir James Dewar in the production of the high vacuum, the study of which led to results of considerable scientific importance. The remarkable activation of charcoal by the comparatively simple method indicated in these researches may well have pharmacological significance. Charcoal has long been used in gastric disturbance with eructation, the element, it was claimed, serving as an absorptive, not only of gas, but of fluid in hyperacidity. The charcoal employed for this purpose was probably in most cases stale, and it remains to be seen if applications of activated charcoal prove more effective.

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[1] THE LANCET, May 25th, 1919 (p. 907) and June 7th, 1919 (p. 1001).

EROSIVE VULVITIS

ACCORDING to Dr. Thomas Latane Driscoll,[1] of Richmond, Virginia, this condition is not generally recognised, although the corresponding disease in the male, known as erosive or gangrenous balanitis, has been known for several years. Like Vincent's angina and ulcero-membranous stomatitis, it is due to the symbiosis of the fusiform bacillus and spirillum. The predisposing causes are filth and prostitution, with attending frequent copulation and exposure to unnatural sexual relations. Dr. Driscoll reports three cases in women who were inmates of the jail at Richmond and had all been convicted of prostitution. The genitals were extremely dirty, and showed a large amount of discharge from the diseased focus and from the vagina, so that ideal conditions were present for the growth of the specific organisms. In each case there was extensive ulceration of the part, with a slight amount of local œdema. In the most severe case there was an almost complete destruction of the vulva, the labia and clitoris having completely sloughed away. In all three cases the inguinal glands were enlarged without signs of suppuration. There was a slight degree of toxæmia and the patients showed a tendency to melancholia. The Wassermann reaction was negative in all three cases. There was no response to antisyphilitic treatment, including arsphenamin. In conclusion, Dr. Driscoll states that erosive vulvitis may be suspected in the presence of persistent ulceration, with a negative Wassermann reaction and the clinical characters described above. The presence of fusiform bacilli and spirilla confirms the diagnosis, but it must not be forgotten that the infection may be superimposed upon other lesions of the genitals.

THE POSITION OF THE CITY BACTERIOLOGIST.

WE note with interest that a movement is taking place in the city of Belfast to appoint the professor of pathology and bacteriology as city bacteriologist, following the example set by Liverpool seven years ago. This arrangement, by linking up city and university more closely—an end desired by all who have the real concern of their University at heart—possesses advantages for both. The city is able to secure for its bacteriologist a man whose training, academic record, and ability in research have been tried and tested by the fact that he has secured a professorial chair. On account of his recognised standing his decisions on work submitted to him are at once accepted by the health authorities with whom he has to deal; being a professor, appointed and paid by the university, he has an independence which no purely city official can have. The university gains in being brought more closely in touch with city work and in obtaining material of enormous value in practical teaching, especially for those who are to adopt public health as a career. To take an instance specially applicable to a port like Liverpool—the control of plague by systematic rat examination. This is daily routine, and every student has an opportunity of seeing all the details, from the work carried out in the sanitary offices to the complete report by the bacteriologist, and that not once or twice, but every day if he should so wish.

Some fear that, under dual control, difficulties might arise in dealing with city councillors and health committees, by the very fact that the professor holds an independent post. Experience in Liverpool shows that these difficulties are imaginary. Cranks exist in lay or medical bodies, but, though they annoy, their influence is negative or passing. A further advantage lies in finance. In Liverpool, where the upkeep of the laboratory rests in the main on the city, the work done in it is not starved, as is the case with so many university laboratories, and will remain the case until our rulers come to realise fully that research can only be satisfactory when carried out in a well-equipped laboratory with a qualified and adequately paid staff. The Liverpool arrangement has worked well, and has fully justified the wisdom of the members of university and city who brought about the union. It has, of course, its weak points; one particularly is that pathology is not associated with the bacteriological department. Bacteriology and pathology cannot be separated with advantage, and it may be hoped that in Belfast the present connexion between the two subjects will be maintained. Should it prove necessary to divide the two departments, professors of equal status should be appointed. In any new scheme we would like to see a closer relation between clinical work and bacteriology and pathology. Both professors might be honorary officials of some hospital, infectious or otherwise, with free access to the wards and with the status of physicians. In this way only will research on the ætiology and treatment of disease be carried on with success.

CORONERS JURIES

THE inquest held recently by the Rotherhithe coroner upon the bodies of David and Ada Ayles, husband and wife, has been the subject of comment on account of Mr. W. H. Whitehouse having conducted the inquiry without a jury. The deceased were in poor circumstances, allegations were made that their deaths were due to starvation, and that a relieving officer had refused assistance which should have been afforded. On the other hand, apart from conflicting evidence given by lay witnesses as to the alleged shortage of food and money, Dr. R. C. Harkness, medical superintendent of the Bermondsey and Rotherhithe Hospital, where the luckless couple died, attributed their deaths to pneumonia, and stated that the woman was not emaciated, but fairly well nourished, and that the man, though naturally thin, did not give the impression of being starved. In the circumstances, it is difficult to see how a jury could properly have returned any other verdict than that given by the coroner, which ascribed death to natural causes. It was a case, no doubt, in which in the exercise of the discretion given him by the Juries Act, 1918, the coroner might have summoned a jury without anyone suggesting that he was shirking unduly the responsibilities of his office. It was not, however, a case in which he was bound to have a jury, for whatever the conduct of the relieving officer had been proved to be, it could not have been a question of his having committed murder or manslaughter. As to the cause of death, with which alone the coroner was concerned, the medical evidence was conclusive. Whether it is desirable to dispense with a jury in coroners' courts for cases not likely to result in charges of manslaughter is a difficult question in the light of experience recently gained; probably a jury is generally desired by the public. The matter will no doubt be made clear when a Bill to amend the law of coroners' inquests is introduced. What is not clear at the present time is why the experiment is being continued. The conditions which brought about the Juries Act of 1918, and the Coroners' Emergency Provisions Act of 1917, providing for smaller juries at inquests, are now over, and both Acts were passed to have effect during the war, and for a period of six months thereafter.

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[1] Archives of Dermatology and Syphilis, February, 1920

ROYAL SOCIETY OF MEDICINE: SECTION OF SURGERY.

AT the annual meeting of the Section of Surgery of the Royal Society of Medicine there was a very interesting exhibition of specimens from the museums of the London hospitals illustrating innocent tumours of the alimentary tract and leather-bottle stomach. It is hoped to hold similar exhibitions from time to time. A gratifying feature of the session, now closed, has been the increase in attendance, and the thanks of the members are due to Sir John Bland-Sutton, the President, for his successful stimulation of the section.

THE WINDSOR COLLIERY INCIDENT.

WE briefly recorded last week the proposal of the employees of the Windsor Colliery at Abertridwr to become a registered society providing medical attendance. A South Wales correspondent writes that the position is much as follows:—

> In the past doctors have practised in the mining areas for as short a time as possible, desiring to make money, and, having done so, to leave the districts, which are not congenial for the permanent abode of professional men. The tendency has therefore been to undertake an excessive amount of work, obtaining for it the best scale of remuneration possible. Those who have been able to stand the work for 20 years or longer have retired on the proceeds. The proposed Medical Aid Society reduces the income of the practitioners when compared with the scale of earnings under the present method of procedure. Whether it will reduce the amount of work each man is called upon to undertake it is difficult to say. What appears to be wrong in the miners' proposal is not so much the income suggested as the number of doctors whom they propose to engage. What is wanted is more doctors, not more pay.

Our correspondent thinks that the position taken up by the medical profession has not been made very clear locally. It is stated in the *Western Mail* of May 3rd that, when the idea was first mooted, local practitioners agreed to the new procedure should it receive the sanction of the British Medical Association. The doctors who previously attended the miners and their families have now, politely but firmly, decided not to work the scheme, which, when submitted to the Association, was placed amongst the banned forms of contract practice. Nothing has been put forth to enable the miners to distinguish between the position of a whole-time medical officer of health working for the health committee of a town council, or a tuberculosis officer in charge of a sanatorium managed by a lay committee, and that which the proposed Medical Aid Society offers. The objection offered, that choice of doctor is lost, has some weight, for although under the arrangement the society intends choosing its own officers, it should be remembered that there was a 30 per cent. minority which voted against the new scheme, and which, if coerced into adopting it, will have their choice of doctor restricted against their will. The disfavour with which the Association regards contract practice in any form is based on the belief that a limitation in the scope of his practice will necessarily in the long run impair the quality of the service offered by the practitioner. The Windsor colliers should be put in possession of the evidence upon which it is based, as they would then see that their proposed society will benefit neither themselves nor the doctors.

THE PREVALENCE OF HERNIA.

THE incidence of hernia in the general population is a subject which has attracted attention for many years. The question has never been satisfactorily settled, as it has only been possible to examine, in sufficiently large numbers, special classes of the community such as school children or young military recruits. In the recent Report of the Ministry of National Service on the Physical Examination of Men of Military Age, to several aspects of which attention has already been drawn in these columns,[1] the prevalence of hernia has not been overlooked, and new and valuable data have been obtained. It is unfortunate for our present purpose that the majority of the reports give only the percentage of men relegated to Grades III. and IV. on account of hernia and not its total incidence. In two reports, however, this is done. Dr. J. D. Comrie,[2] in a series of 10,000 recruits drawn from a mixed rural and urban population in Scotland between the ages of 18 and 41, found that 3·6 per cent. were the subjects of hernia. Of the 363 cases 12 only were rejected. He states that of the cases which had been operated upon one-sixth had recurrence. It is obvious, therefore, that 3·6 per cent. does not represent the true incidence at these ages, as the cured cases are not included. That the liability to hernia increases to the end of a man's working life is shown by Dr. Basil Cook in the report of the medical officer to the Local Government Board for 1908–09, where he states that the rate per million ruptured continues to increase till the age of 65. This is borne out by the regional report for Manchester and Stockport district, where of 2994 men aged from 43 to 51 12·5 per cent. were ruptured, and by a chart showing the percentage rejections for various age-groups in the London district. Of the economic effects of hernia we can judge from the statement that of 160,545 men in the London district 1·1 per cent. had such severe forms of hernia as to be placed in Grade IV.—that is, they were judged "totally and permanently unfit for any form of military service," even of a sedentary nature. In civil life the economic value of these men must be lowered. Dr. Cook also states, in the report cited above, that of 3162 adults seen in workhouses in 1907 1·9 per cent.

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[1] THE LANCET, March 6th, p. 557; March 27th, p. 726; April 3rd, p. 780.

See also THE LANCET, 1919, ii., 957.

attributed their pauperism to the incapacitating effects of hernia. The results of the modern operation for the cure of hernia are known to be excellent in early cases; thus in 1902 the army and navy invalided 15 per cent. and 25 per cent. respectively of their hernia cases, while in 1908, after extending the use of the operation, the rate fell to 4 per cent. in each case. It seems to us that an official inquiry might well gauge whether sufficient provision is made for operating on these cases, and whether the two causes which at present prevent men availing themselves of the existing accommodation can in any way be obviated. The causes are the length of the waiting lists at hospitals and the difficulty which a man with dependents has in giving up his work for the necessary time. The question of the provision of trusses of good patterns might also come within official purview. Many of those on the market are quite unsuitable, and the advertising quack who supplies an "appliance," with or without a substance to rub into the skin, robs the working man, in the aggregate, of many thousands of pounds a year under the pretext that he will not only retain but cure the rupture.

TO OUR READERS.

THE greatly increased and still increasing cost of paper—and, indeed, of everything connected with the making of a newspaper—has necessitated an advance in the price of THE LANCET. The rise in postage rates, also promising to go higher, is a factor working in the same direction in every newspaper office. The alternative to an advance in price—namely, a serious curtailment of the contents—would, in our opinion, abate too much of the usefulness of the journal to make it acceptable to our readers. We hope and believe that they will agree with us that at no time has it been more necessary for the profession to interchange freely their knowledge and their experiences, and to learn as fully as possible what their social and professional relations will be in the approaching period of reconstruction. We believe that we best interpret the wishes of the readers of THE LANCET by not attempting to reduce the present size of the journal, and it has accordingly been decided, with the issue of May 22nd, to increase the charge for the weekly issues of THE LANCET from 10*d.* to 1s., the inland subscription from 36*s.* to 42*s.*, and the foreign subscription from 40s. to 50s.; for the impossibility of getting thin paper for the foreign copies leads to an increased rate of postage on the copies sent abroad. These changes will not take place during the currency of present subscriptions, but will operate on their renewal. We have not made the increases without ascertaining their necessity, and we shall be delighted when circumstances permit us to return to the former prices.

THE Croonian lecture of the Royal Society on Genetic Segregation will be delivered by Professor W. Bateson at the meeting on June 17th.

WE commend to our readers a short notice, which appears in another column (p. 1085), of the existing position of the Auxiliary Royal Army Medical Corps Fund. Over £4500 were distributed last year in reply to great needs. But the needs remain, and subscriptions are urgently required to meet a great debt of honour.

A NATIONAL COLLECTION OF TYPE CULTURES.

THE Medical Research Council has long had in view the formation of a National Collection of Type Cultures, from which biologists in general and bacteriologists in particular may obtain, through a trustworthy source, authentic strains of recognised bacteria and protozoa for use in scientific work. The need of an available supply of this kind has long been felt in many directions and particularly in medical research work, for the study of principles and methods in bacteriological technique and for the systematic classification of bacteria and protozoa in the various species and strains.

Previous Provision of Facilities.

In the past the needs of workers in this respect have never been fully met. In this country the Lister Institute of Preventive Medicine has for many years assisted bacteriologists both at home and abroad, so far as the resources of its own private collection have permitted, but British workers have been dependent in great part upon the courtesy of scientific colleagues or upon the collections of institutes in other countries. Before the war the collection at the Pasteur Institute in Paris, maintained by M. Binot, was very helpful to workers here. A collection of type cultures was formerly maintained on a commercial basis by Král at Prague, and this was subsequently transferred to the Sero-physiological Institute of Vienna. This source of supply was never completely satisfactory, though many made use of it. In America the Museum of Natural History in New York has maintained a Culture Bureau during the last eight years, and it is believed that the activities of the Bureau have been of the greatest benefit to workers there, not only by the provision of authentic cultures, but also by the studies in classification made by its staff. Early in the present year the Medical Research Council was able, by the courtesy of the governing body of the Lister Institute, to make arrangements to maintain a National Collection of Type Cultures at the Institute, where all the necessary facilities have been provided. The scheme will be under the general direction, on behalf of the Council, of Dr. J. C. G. Ledingham, a member of the staff of the Lister Institute, while Dr. R. St. John Brooks and Miss M. Rhodes have been appointed by the Council to be curator and assistant curator respectively. The Medical Research Council acknowledges its indebtedness to the governing body of the Lister Institute for this opportunity of establishing a central collection upon a proper footing at once, without further delay. The present arrangement is made for a short term of years, before the end of which the future location of the collection will be considered.

Aims and Objects of the Collection.

It is proposed to collect and maintain bacterial and protozoal strains of medical, veterinary, and economic importance, but in the immediate future the efforts of the staff will be directed more particularly to obtaining fully authenticated strains of pathogenic organisms. Subsidiary researches on the viability of bacteria in artificial media will be undertaken with a view to the discovery of economical and labour-saving methods of subculture. The staff will also be prepared to give help in the identification and classification of strains received from workers at home or abroad.

The coöperation of bacteriologists is earnestly invited, and in return every effort will be made to supply the needs of applicants for cultures. Cultures that may be sent either for identification or for maintenance in the collection should be accompanied by the fullest particulars as to source and date of isolation and, if possible, by clinical and epidemiological notes. It must naturally be left to the discretion of the director to decide whether given cultures are of sufficient importance to be maintained in the collection, but it is hoped that this will not deter workers from forwarding strains of even the commonest types of organism. These will have value at least for the adequate representation of strains of recent origin. Studies in classification will also be aided if large series of authentic specimens of different but closely similar or cognate species are available for workers.

Cultures will be supplied on demand so far as possible to workers at home or abroad, and, as a rule, a small charge will be made to defray the cost of media and postage. Strains representing at least the commoner types of human infection can already be supplied, and at a later date it is proposed to prepare a catalogue for publication.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Scottish Board of Health Memoranda.

Malaria.—A memorandum issued to each local authority deals with indigenous cases of malaria occurring in Scotland. It is pointed out that there are in Scotland a large number of men who contracted malaria while on service, and the presence of individuals having the parasite in their blood cannot be overlooked. The anopheline mosquito is found in Scotland in many localities, though its activities are limited by the climatic conditions, excepting between the months of May and September. The tertian form of the disease is that most likely to be seen, and diagnosis should be easy from the typical clinical picture it presents. It should be kept in mind that children are highly susceptible to malaria, particularly those who are ill-nourished. Arrangements have been made whereby specimens of blood from suspected cases can be examined at the laboratory of the Royal College of Physicians. Malaria has recently been made notifiable in order that medical officers of health may make investigation into possible sources of infection. In an appendix mention is made of all districts in which the anopheles has been recorded to occur.

Treatment of Tuberculosis.—The Scottish Board of Health in a circular state that the village settlement idea, to which they attach great importance, is related on the one hand to the sanatorium and training colony, and on the other to the re-introduction of ex-sanatorium and training colony patients into employment. In such settlements ex-Service men would be given the opportunity of permanent employment, with housing accommodation for themselves and their families. The committee consider that such men would be more willing to enter sanatoriums and to remain there for a sufficient period if they knew that in so doing they had a definite prospect of continued treatment and training and later on care in permanent settlements. The committee believe that where schemes of "colony" training are put forward under suitable conditions, are sympathetically managed, and hold out a prospect of permanent settlement, ex-Service men will be willing to avail themselves of the opportunities offered. Such settlements should be in close connexion with existing sanatoriums and training colonies. The committee suggest the provision throughout the country of ten such settlements with accommodation in each for from 200 to 250 men and their families, and on this basis there might be one or two of these settlements in Scotland. They recommend that the Government should provide a sum of £1,000,000 to finance a number of village settlements for ex-Service men, which might be provided either by local authorities or by voluntary bodies. They further recommend that where these settlements were provided by local authorities the Government should meet the capital cost outright, but that after, say, five years the scheme would more properly form part of the local provision for the treatment of tuberculosis, and that then local authorities should repay an agreed proportion (not less than one-fifth) of the capital expenditure. The present purpose of the Board is to bring to the notice of the more important local authorities the possible establishment of village settlements, and to intimate that at an early date a conference for discussion of possible action will be held.

Small-pox in Scotland.

The continued extension of small-pox in Scotland is viewed with anxiety by the public authorities. The disease first made its appearance in Glasgow in the month of March, and since then there has been a progressive increase in the number of cases, as well as an extension of the outbreak to other districts. The origin of the present epidemic has been traced to two sources—one a ship from India and the other a ship from Egypt. In a considerable number of cases there has, however, been failure to discover the source of infection. The number of unvaccinated persons has very greatly increased of recent years, and the position is one which is favourable for the further extension of the outbreak. The type of small-pox is severe. The Scottish Board of Health has issued a circular to local authorities in which it is urged that for the present all cases of "chicken-pox" should be made notifiable, and that the necessity for immediate medical advice in any case of doubtful illness should be urged upon the public. In Glasgow it has been pointed out that the outbreak has been largely confined to unvaccinated children and to unrevaccinated adults. Of 11 deaths, 9 were in unvaccinated individuals, of whom 7 were children; no death has occurred among vaccinated children. During the fortnight ending April 17th there were 12 cases of small-pox in Scotland; for the next fortnight there were 21 cases; while for the current period ending May 15th, there have been up to date (9th) no fewer than 42 notifications. Glasgow still remains the headquarters of the disease, but cases have occurred in Edinburgh, Falkirk, and elsewhere. Every possible measure for control of the epidemic is being adopted, and the need for recent vaccination is being widely brought to public notice. The Glasgow figures to date show a mortality of 29 per cent. among the unvaccinated, and of 5 per cent. among the vaccinated.

Influenza in St. Kilda.

The isolated population of St. Kilda is at present suffering severely from influenza, and the numerous reports in the daily press have not exaggerated the proportional incidence, but have not always indicated the size of the population affected. The inhabitants number about 80, of whom at least 60 have been affected. Communication with the mainland has been very difficult since the termination of the war and the withdrawal of the wireless station and of naval patrols. News of the outbreak and of shortage of medical stores was brought to Fleetwood by a trawler. There is no medical man on the island, and care of the sick is in the hands of the district nurse and the parish minister. Immediately on receipt of the news the Board of Health dispatched one of their medical officers and a supply of stores to the island. The St. Kildans, owing to their isolated position, are said to be particularly susceptible to the ravages of epidemic diseases.

Proposed Acquisition of Oldmill Poorhouse by Ministry of Pensions.

The Ministry of Pensions propose to acquire 200 beds at Oldmill Poorhouse, Aberdeen, as a hospital for disabled ex-Service men. This poorhouse formed the 1st Scottish General Hospital during the war. For repairs necessary to the poorhouse as a result of its occupancy by the military authorities during the war the parish council claimed the sum of £18,000. As this sum is still outstanding, and as the repairs have not yet been completed, it is unlikely that the parish council will entertain the request of the military authorities until an amicable settlement as to the expenses incurred in repairing the premises has been arrived at.

Aberdeen Sick Children's Hospital.

Sir James Taggart, ex-Lord Provost of Aberdeen, has written to the local papers suggesting a plan to raise funds for the building of a new Sick Children's Hospital at Aberdeen. His suggestion is that all the workmen in the city and the surrounding district should work one Saturday afternoon in their various factories and workshops, and hand over the wages earned in that afternoon to the hospital fund, the employers also contributing their share in the scheme. Sir James Taggart calculates that, taking the number of the workers in Aberdeen to be 63,645, four hours' work at an average of 1s. per hour would realise the sum of £12,729. To this would be added the employers' contributions and the sum received from the surrounding districts. The appeal has received a mixed reception. Several employers have expressed hearty approval of the scheme, but the general feeling would appear to be that the scheme is impracticable.

University of St. Andrews.

At a meeting of the University Court of St. Andrews held on May 1st the following appointments to lectureships were made: lectureship in regional anatomy (Dundee), Dr. John Taylor; lectureship in diseases of children, Professor Ll. T. Price.

The first meeting of the General Nursing Council for Scotland was opened on May 10th, at the Scottish Board of Health, Edinburgh, by Sir Leslie Mackenzie. Captain C. B. Balfour, of Newton Don, and Miss Norah Milne, B.Sc., were appointed chairman and vice-chairman of the Council, with Mr. C. L. Farmer, of the Board of Health, interim secretary.

May 10th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Eight Hours' Day for Hospital Staffs.

NO one has doubted the difficulties accompanying the application of the eight-hour day law to hospital staffs in Paris. Before adopting the Order a careful study of the question was made by committees composed of members of the municipal council, administrative officers of the Assistance Publique, and representatives of the various unions concerned. It is obvious that the new law has resulted in a considerable increase of expenses, which cannot be accurately estimated at present, and, indeed, will not really be appreciated for a year. The arrangements adopted consist of the division of the personnel into three groups—a morning shift, an afternoon shift, and a night shift. The first two groups work respectively for 9½ hours, with an interval of 1½ hours for meals, to be taken at will outside the hospital (no rebate being allowed) or within its walls. The night shift works for eight consecutive hours, and its members are provided with breakfast before leaving hospital if desired. Since trade-unions in general have promised that shorter hours will be compensated for by more concentrated work, it has been arranged that hours of work shall be counted, not from the time that the employee enters the establishment to the time he leaves it, but from the moment of his appearance dressed for duty till that at which he leaves his post. Moreover, holidays, which have been fairly easily obtained till now, will only be granted under exceptional conditions. Too frequent sick leave will lead to dismissal. The services of employees whose work can be replaced by an extended use of the telephone, telegraph, or postal departments will be dispensed with. The attendant will have to remain actually in the wards, and will not be allowed to attend courses and lectures in the hospital during his duty hours. The three shifts will not have the same numerical composition. The morning shift, which will arrive before the visiting staff, take temperatures, attend the round, take down the prescriptions, and assist at operations, will be the most numerous. The times of arrival of attendants are scheduled from 6 in the morning to 8.30, at half-hourly intervals, the first comers leaving earlier, and the last comers leaving at 6 in the evening. Similarly the dinner hour is fixed at three successive hours, so that all the attendants in a ward will not be absent at the same time. The afternoon shift succeeds the morning shift in the same way, at half-hourly intervals, and with variable meal times. The night shift, the least numerous of the three, takes over at 10 and 11 at night, and leaves at 6 and 7 in the morning. When its members leave in the morning they indicate to the day shift all necessary information and directions as to continuation of treatment. M. Mesurier has devised a special case paper, divided into three parts, on which each shift writes notes which can be consulted at any moment by the Chief.

The principal difficulty resolves itself into the question of the meal times of the afternoon shift. Because of the variable hour, always late, at which the mid-day meal is taken, its duration has had to be limited to half an hour, as compared with an hour and a half in the case of the morning shift. M. Mesurier recommends that this shift should be recruited from attendants living in; if any externs have to be employed they should take their meals in the hospital refectory during a half hour between 1.30 and 2.30. For the general employees of the hospital not working in the wards an eight hours day has been much easier to organise, with four hours in the morning, four in the afternoon, and an interval of one and a half to two hours for dinner. In all, the personnel of the hospital has had to be increased, not by 33 per cent., as had been calculated, but by 20 to 22 per cent.

Athletic Sports at the Military Hospital.

An interesting innovation has just been established in Paris at the Hôpital Villemin. The medical officer in charge has for 10 years specialised in the differentiation of human constitutions and temperaments on an anatomical basis, and has undertaken to prove the results of his studies by practical demonstrations. Convinced that the perfect human type is that developed by Olympic exercises and by running, he has obtained the permission of the military authorities to convert into training grounds the lawns of the old hospital. Not only convalescents will be drilled there, but also soldiers from the neighbouring barracks if desired. Already the school of physical re-education at Joinville has collected together all the soldiers in bad general condition, but with no disabilities justifying their exemption from military service. All the medical officers in charge of troops have been asked to hunt out puny recruits and to send them to this school, where three months of physical culture in the fresh air are expected to transform them into strong soldiers in excellent condition for the army. The military medical service in France is thus entering a path which should lead to real progress.

May 10th

VIENNA

(FROM OUR OWN CORRESPONDENT.)

Post-graduate Lectures and Clinical Courses at the University of Vienna.

THE time-table for the summer term of the Medical Faculty of the University of Vienna has just been published. It contains the announcement of 448 different classes, which will be held by 21 ordinary, 113 extraordinary professors, and 152 private teachers and clinical assistants. As the chairs of obstetrics and gynæcology, as well as experimental pharmacology and pathological anatomy, are still vacant, these subjects will be taught by the chief clinical assistants. The fees payable are for the first time in some accordance with the general rise of prices, and the students have in vain tried to induce the Government to stick to the low fees hitherto paid for clinical teaching. A student, whose lecture fees for his sixth half year used to be about 60-100 kronen, now has to pay at least 500-700 kronen, special courses not included. Post-graduate courses are still more expensive, costing now about 1000 kronen for each course. This increase of fees would not be of great moment to English or American students, however, for even 1000 kronen is at the present rate of exchange about equivalent to $5 or 25*s*. There will be 8 classes in physiology, 35 on pathological anatomy, 81 on general pathology, 22 on rhino-laryngology, 29 on otology, 46 on surgery, 41 on dermatology and syphilis, and 12 on radiology, besides numerous others on subjects of less general importance.

Increase in Number of Medical Students.

The winter session lasted from October, 1919, till March, 1920, and the figures are now available for comparison and comment. There were registered 4282 ordinary students of medicine (against 3697 the term before), amongst them 578 women. Besides these there were 221 extraordinary students, mostly foreigners, of whom 32 were women. The increase in the number of students is well marked since 1915, and the output of graduated doctors is growing so rapidly as to constitute a real problem. Already there are over 4000 practising doctors in Vienna, against 3100 in 1914, whilst the population of the capital of our mutilated country has gone down from 2,250,000 in 1914 to 1,860,000 on Dec. 31st, 1919.

Investigations on the Caloric Needs of Large Numbers.

In a paper read by Professor Durig before the Medical Society of Vienna quite recently, the results of exhaustive investigations conducted by him and his staff into the conditions prevailing among the population of Austria have been given, and serve to elucidate several problems of nutrition. First of all, it appears quite clear that the old teaching of Voit is correct, that 3000 calories are necessary for the human body to maintain its metabolism equilibrium. This was believed to be too high a figure at the beginning of the war. But it was soon proved that Voit's teaching cannot be ignored. Not every person requires 3000 calories—only men of 70 kilos. weight doing moderate labour. If large numbers are to be cared for one must calculate with provision-units or food-units. Thus, for example, 100 females are equal to 80 units, and 100 16-year-old adolescents are equal to 65 units. The figures of the last Census of 1910 show that in pre-war times 100 persons of the population of Old Austria required 77 units of provision or food, and this amounts to 2200 calories. This figure coincides very closely with the 2300 calories postulated by Professor Rubner as the average requirement in his famous researches on German people during the first months of the blockade of his country. At present our population has changed so much that the proportion of males to females is 100 : 120; previously it was 100 : 103. There are now fewer children and old-aged people. The average body weight, which stood in 1913 at 46 kilos., is now 41 kilos. The hours of work are less; formerly 9–10 per day—now hardly 8 hours, and the intensity of work has decreased. Therefore the caloric requirements have gone down at least 10 per cent. And as there is hardly any matter wasted in our foodstuffs now—everything is being utilised by our hungry people—the caloric requirement is at present about 1700, which must be provided for if catastrophe is to be avoided. Rationing of food has serious drawbacks, as the uniform ratio of the caloric value guaranteed to each citizen by the present method of food distribution is insufficient even for a widow with young children, without mentioning a hard-working labourer, who may need over 4000 calories a day. Professor Durig earnestly recommends improved methods of agriculture as the only means to obtain adequate quantities of food in our country without resorting to the ruinous import of cereals from abroad.

Health Statistics for the First Quarter of 1920 and Before.

The chief medical officer of health for Vienna has recently made public a few statistical items which are not without interest. In the first weeks of the year the mortality was about 740 cases per week; in the second week of February it rose to 1030, owing chiefly to influenza and heart disease, and continued to rise to 1045 and 1106. Whilst tuberculosis has claimed nearly the same number of victims every week, the figures vary between 157 and 163 per week. Nearly as many have fallen victims to influenza after a temporary drop in January. On an average the mortality corresponds to the general conditions of nutrition and work prevailing in this city. Graver affections of the heart and the circulatory system often prove fatal because of diminished resistance of the body. Death due to heart disease is becoming more frequent. Measles and scarlet fever have been rather virulent; over 40 deaths per week were caused by these diseases. The average daily number of deaths was 125. In the years 1911 to 1916 the total number of deaths ranged between 33,500 and 37,600; this number rose in 1917 to 76,131, and in 1918 to 51,497, but dropped in 1919 to 49,932. Although the population also diminished in 1919—it is now 20 per cent. less than in 1914—the death-rate has not kept pace with it. The birth-rate in the years 1911 to 1914 was between 36,000 and 38,000. In 1915 it fell to 29,575, and the next year it was 23,491. In 1917 it dropped to 20,688, in 1918 to 19,287, whilst 1919 showed an increase to 24,128.

April 22nd.

AUSTRALIA.

(FROM OUR OWN CORRESPONDENT.)

Medical Education.

SOME time ago the Melbourne University left the insistence on Latin and geometry as compulsory subjects for matriculation, before entering on a medical course, to the discretion of the Medical Faculty in individual cases. At the last meeting of the Council it was decided to abolish them as compulsory subjects altogether. This was opposed by Sir Harry Allen, the Dean of the Medical Faculty, who said the general education of students in English was very poor, especially in spelling. The change has been made largely by the advocacy of the heads of public and private schools. Two medical members of Council voted with the majority.

The Dispute with Lodges in Victoria.

At the suggestion of the Premier of Victoria a conference was arranged between the Victorian Branch of the British Medical Association and the Friendly Societies' delegates to try to find some middle way in respect of points which still separate the two parties to a dispute which has remained unsettled for two years. After Judge Wasley, had, as arbitrator, awarded practically the terms the B.M.A. were asking nothing further was done, because the B.M.A. insisted on medical institutes which had been started since the dispute began being closed. To this the Friendly Societies would not agree, and a deadlock ensued which the societies tried to overcome by sending a representative to England to engage new medical officers for further institutes. This course is only approved by some of the extremists, and the conference took place, with the result that three of the large Orders have agreed to accept the following terms as a basis if approved by their annual meetings, to be held in March. It is possible that a satisfactory arrangement will be reached, though the M.U.I.O.O.F. and a considerable section of the A.N.A., two of the largest Orders, are opposed to any compromise. The provisions are:—

1. Acceptance and recognition of the terms of the Wasley award.
2. The exercise of freedom of choice to members of the Friendly Societies selecting their doctors.
3. No victimisation or undue influence to be exercised by either parties to the present dispute.
4. No interference with the staffs or conduct of present established institutes.
5. An undertaking by the Friendly Societies that the respective governing bodies will submit to their annual conferences (with a strong recommendation for adoption) a rule prohibiting any branch or body of members taking part in the establishment of a new institute for four years.
6. The governing bodies of the various Orders will obtain control of all medical arrangements of individual lodges. (The Australian Natives' Association and the Independent Order of Rechabites have taken the necessary steps and secured control. The United Ancient Order of Druids will submit alteration of rules at next annual meeting.)
7. That all arrangements with medical officers shall be made with these governing bodies.
8. Machinery will be devised to enable the societies to carry out their promise of free choice of doctors.
9. There be appointed a committee representing the Victorian branch of the British Medical Association and the Order or Orders for the purpose of carrying out the terms of the agreement, and to interpret the meaning of any clause or condition contained therein.

Tasmanian Health Legislation

A new Hospitals Act came into force last year it provides, inter alia, for the inspection of hospitals by the Chief Health Officer and the control of persons suffering from infectious disease The notification of venereal disease does not appear to be a very satisfactory measure For the year 254 males and 53 females were reported suffering from gonorrhœa and 36 and 17 respectively from syphilis It is obvious that these figures must be inaccurate and that female cases especially are not being returned

Death of Sir T Anderson Stuart

The death is announced of Sir Thomas Anderson Stuart, M D , who came to Sydney some thirty years ago to found the Medical School in the Sydney University His work has been crowned with the most gratifying success and his many students have always had an affection and esteem for their Dean, who was also Professor of Physiology, which continued to his death The late Professor Stuart was a man of marked personality and made his influence felt outside University affairs Some time ago an illness began to manifest itself which in its progress revealed its malignant character Notwithstanding this knowledge and the fact that there was considerable personal suffering Professor Stuart quietly continued at his work, and at the time of his death was arranging matters for the annual opening of the school He was 63 years of age and was a well known graduate of Edinburgh University Expressions of regret have been universal throughout Australia

March 15th

The Services.

ROYAL NAVAL MEDICAL SERVICE

Temp Surg Lieut J T Wood (D) R N V R transferred to permanent list of Surgeon Lieutenants (D)

Surg Rear Admiral Sir P B Handyside placed on retired list

ARMY MEDICAL SERVICE

Col J D Ferguson is placed on half pay

Temp Col Sir A W Mayo Robson (Major R A M C T F) relinquishes his temporary commission on re posting

ROYAL ARMY MEDICAL CORPS

Temp Capt W E R Dimond and C L Spackman relinquish the acting rank of Major

Officers relinquishing their commissions —Temp Major C L Williams (retains the rank of Major) Temp Capt (acting Major) M Fitzmaurice Kelly (granted the rank of Major) Temporary Captains retaining the rank of Captain R Lawrence T Wylie, L O Weinman, D Miller M D'Albon, W L G Davies, J McGarrity

SPECIAL RESERVE OF OFFICERS

Capts R P Starkie and J Purdie relinquish the acting rank of Major

Capt J Lanigan relinquishes his commission and retains the rank of Captain

TERRITORIAL FORCE

Major C J Martin to be acting Lieutenant Colonel whilst specially employed

Officers relinquishing their commissions —Capts C E H Milner, G B Buchanan A Cambell (granted the rank of Major) and T W H Downes (retains the rank of Captain)

ROYAL AIR FORCE

Squadron Leader A Grant is granted a permanent commission as Squadron Leader

Capt A W P Pirie and Lieut F L Sergeant are transferred to the unemployed list

Capt (acting Major) A A Atkinson (R A M C , S R) relinquishes his commission on account of ill health caused by wounds and is permitted to retain the rank of Major

Capt C P V MacCormack relinquishes his commission on account of ill health caused by wounds and is permitted to retain his rank

TERRITORIAL DECORATION

The King has conferred the Territorial Decoration upon the undermentioned officers Lieut Col A G Hamilton (attached Welsh Border Mounted Brigade, Field Ambulance) Majors D C L Orton (attached Welsh Mounted Brigade Field Ambulance) V Graham (attached 5th Battalion Yorkshire Light Infantry), G P Chappel (attached 7th Battalion, Middlesex Regiment)

INDIAN MEDICAL SERVICE

Major R H Bott to be temporary Lieutenant Colonel

Col H Fooks is retired

AUXILIARY ROYAL ARMY MEDICAL CORPS FUND

The annual meeting of this fund was held at 11 Chandos street Cavendish square, W , on April 30th with General Sir John Goodwin in the chair Since the last annual meeting £1974 have been granted to help the maintenance of the orphans of 31 officers in the Auxiliary Royal Army Medical Corps who lost their lives as a result of the war, and £2620 have been granted in the same way to the orphans of 83 of the rank and file making a total of £4594 granted and 114 cases relieved in a single year As frequently several children of a single case were relieved, it will be seen that the total number of persons relieved was considerable The major part of the income of the fund is derived from subscriptions and the committee earnestly hope that these will continue to be sent to the honorary secretary Sir William Hale White at the above address

URBAN VITAL STATISTICS

(Week ended May 8th, 1920)

English and Welsh Towns —In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 18 million persons, the annual rate of mortality, which had declined from 18 7 to 14 2 in the six preceding weeks further fell to 13 8 per 1000 In London with a population of nearly 4½ million persons the annual death rate was 13 0 or 0 7 per 1000 below that recorded in the previous week, while among the remaining towns the rates ranged from 4 3 in Eastbourne 5 6 in Southend on Sea and 6 1 in Hornsey to 21 3 in Sunderland 23 2 in Stockton on Tees and 26 3 in West Hartlepool The principal epidemic diseases caused 373 deaths, which corresponded to an annual rate of 1 1 per 1000, and comprised 139 from measles, 78 from infantile diarrhœa 67 each from whooping cough and diphtheria 18 from scarlet fever, and 4 from enteric fever Measles caused a death rate of 1 6 in St Helens 1 7 in Acton and in Lincoln 2 1 in Rhondda and 2 2 in Norwich The deaths from influenza which had declined from 392 to 202 in the six preceding weeks, were 201, and included 31 in London 26 in Sheffield 12 in Bolton, 11 in Newcastle on Tyne and 10 in Huddersfield There were 1947 cases of diphtheria 1794 of scarlet fever, and 11 of small pox under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital against 1951 1831 and 12 respectively at the end of the previous week The causes of 43 of the 4703 deaths in the 96 towns were uncertified of which 11 were registered in Birmingham 4 in Liverpool and 3 each in London and Southport

Scotch Towns —In the 16 largest Scotch towns with an aggregate population estimated at nearly 2½ million persons the annual rate of mortality, which had been 18 9 19 2 and 18 3 in the three preceding weeks slightly rose to 18 4 per 1000 The 428 deaths in Glasgow corresponded to an annual rate of 20 1 per 1000 and included 22 from influenza 18 from measles 5 from diphtheria 4 from whooping cough 2 from infantile diarrhœa and 1 from small pox The 104 deaths in Edinburgh were equal to a rate of 15 9 per 1000 and included 3 each from measles and infantile diarrhœa

Irish Towns —The 182 deaths in Dublin corresponded to an annual rate of 22 9 or 4 1 per 1000 below that recorded in the previous week and included 14 from whooping cough, 9 from infantile diarrhœa 4 from measles 3 from influenza and 1 from diphtheria The 168 deaths in Belfast were equal to a rate of 21 2 per 1000 and included 9 from influenza 4 from infantile diarrhœa 2 each from scarlet fever and whooping cough and 1 each from enteric fever and diphtheria

ON May 8th a number of matrons and nurses, headed by Miss Mildred Heather Bigg R R C presented to Mrs Bedford Fenwick an address of thanks for her work for the organisation and higher education of nurses

MEDICAL MEN AND FRIENDLY SOCIETIES —At the recent annual conference of members of the Rechabite Society held at Exeter it was reported that it would be necessary to raise a 'big levy to meet the medical charges One member stated that many doctors were out to smash the juvenile branches of the Friendly Societies, another remarked that he did not believe this but that the medical men wanted full value for their services

Correspondence.

"Audi alteram partem."

THE HIGHER FUNGI IN RELATION TO HUMAN PATHOLOGY.

To the Editor of THE LANCET.

SIR,—In studying the series of Milroy lectures, by Dr. A. Castellani, in recent numbers of THE LANCET, I have been struck by the classification of the fungi which is therein adopted. The recognition of the sugar reactions as the sole means of separating or identifying such organisms as the yeasts, which are otherwise morphologically identical, appears to me unjustifiable at the present moment. The fermentation of the commoner carbohydrates employed in laboratories, such as glucose, mannite, maltose, saccharose, and lactose, forms an extremely unstable foundation upon which to base any classification of bacilli, or yeast-like organisms; they are regarded by most bacteriologists in the nature solely of confirmatory tests.

It is a matter of common knowledge that such a well-known organism as *B. paratyphosus* A varies considerably in its powers of fermentation of glucose, some strains producing acid only, while others produce acid as well as gas. The confusion which has arisen out of attempts to classify organisms of the Flexner group in this manner has been a source of considerable anxiety to those who are attempting to simplify the problem of bacillary dysentery. But confusion becomes worse confounded when dealing with gas-forming organisms of the *B. coli* group, which are extremely unreliable in this respect and whose reactions do not remain constant after long subculture, call them *asiaticus*, *pseudoasiaticus*, *pseudocoli*, or what you like. The same rule holds good, only more forcibly so, when one attempts to classify yeasts belonging to the genus *Monilia* in this manner. I can claim with some justification that this cannot be done, and should one conscientiously apply every test and not endeavour to create new species one will find that the carbohydrate reactions of these organisms vary from day to day, depending upon the length of incubation, length of subculture, and so on.

Considering these facts it must be conceded that Dr. Castellani has been particularly fortunate in being able to identify and name such a number of species upon such slender evidence, for one must remember that no two authors are yet agreed upon the proper reactions which such a common yeast as the thrush fungus, *Monilia albicans*, should give. In my work upon sprue in Ceylon in 1912 and 1913[1] I isolated 106 strains of yeasts, mostly from cases of sprue, and had I then had the scientific temerity, which I fortunately had not, or been able to employ a big enough series of sugars, I would no doubt have been able to name 106 new species.

It seems to me, Sir, that what is wanted at present is an attempt to simplify, not to complicate or confuse, the nomenclature of tropical medicine; the essence of science is simplicity, not complexity. The needless multiplication of names and species is most galling and perplexing to the sincere student. By these means we are descending into a veritable terminological morass, and are departing as far from Koch's postulates as it is possible to get. The cry of the student of tropical medicine is for facts, not names, and the practical application of these facts to the cure of disease.

After a due consideration of the views set forth above if we attempt to apply the reactions of these yeasts to the identification of different sugars in the urine, it appears that the inferences drawn are unwarrantable. There is only one sugar which it is important to detect in the urine, and that is glucose; and, further, the usual tests suffice; but even were the yeast test as described so accurate as to be specific, has it any practical application, and, if so, are we to understand that the tropical practitioner of the future is to carry round with him cultures of *Monilia balcanica*, *M. krusei*, and *M. tropicalis* with which to inoculate catheter specimens of urine in sterilised tubes in his improvised laboratory; and what is he to do now that the former strain has been destroyed by fire?

Finally, on the supposition that the classification and recognition of these so-called pathogenic fungi is in such an indefinite state, is it not a little premature to describe so many new diseases of the intestine, respiratory tract, cerebrum, genito-urinary system, and skin as being due to their agency? One would imagine that much investigation is required on this subject before finally accepting their existence as definite clinical entities in man.

I am, Sir, yours faithfully,
PHILIP MANSON-BAHR.

Weymouth-street, W., May 5th, 1920.

THE SURGICAL TREATMENT OF UTERINE AND VAGINAL PROLAPSE.

To the Editor of THE LANCET.

SIR,—Dr. W. Blair Bell, in his lecture on the above subject, which appears in your issue for May 8th, pays no attention to the musculature occluding the pelvic outlet; and in his surgical treatment limits himself for the most part to visceral structures, as though this musculature did not exist and is not concerned with the genesis of prolapse. This idea is supported by his reference to the prophylaxis of prolapse—a condition "almost invariably a sequel of parturition"—for the only predisposing condition he mentions is a puerperal retroflexion of the womb. Thus, we may suppose (1) that the babe passes by the musculature referred to, without affecting it, or that the muscular injury is immaterial (perineorrhaphy sufficing to deal with it); (2) that prolapse is not a hernia; and (3) that if Gilliam's operation were performed as a routine in the puerperal state, prolapse would (almost invariably) be prevented. The untenableness of this position is, I think, shown by the interval of time which usually elapses between the last parturition and the occurrence of prolapse. Cases do occur soon after labour (within a few weeks), but in the majority the interval is usually many years. Dr. Blair Bell does not indicate the percentage of these early or acute cases in his series, and I wish he had; nor does he say whether any particular procedure is necessary for their cure. This is unfortunate, for they are important from the point of view of testing operative procedures. Moreover, the occurrence of "congenital prolapse" shows that the influence of pregnancy and labour is unnecessary. Dr. Blair Bell objects to this term being applied to that prolapse which occurs within the first few days of life, and thinks it should be limited to the appearance of the cervix at the vulva (or beyond) in the young virgin adolescent, cases of elongation of the portio being excluded. Against this view we have "congenital prolapse" occurring, not only in the young adolescent, but in older virgins. Further, he does not show reason why this condition should be considered congenital, merely stating it "is no doubt due to inherent defects of the pelvic floor." But this pelvic floor is for him apparently a visceral structure, and in line with this the only way he has been able to treat these cases—the despair of surgeons—with success is by his extensive visceral procedure.

Unfortunately, Dr. Blair Bell, in his lecture, was unable to deal with the genesis of prolapse—the whole of prolapse cannot be treated in one lecture. But unless we have clear ideas of the genesis of a disease, its treatment is bound to be empirical. That confusion obtains and the surgical treatment of prolapse is empirical is shown by the lecturer's references to the opinion and practice of other surgeons; and largely explains his statement that "many cases can be cured by almost any method." Nor do I think Dr. Blair Bell's position impregnable. For if retroflexion or retroversion predisposes to prolapse, how is it these conditions are so often found without prolapse, and without the signs and symptoms of impending prolapse? How can prolapse of the vagina occur without depression of the superjacent organs? Yet we read that primary prolapse of the vagina occurs, whilst the uterus retains its normal position! How, if prolapse of the vagina causes elongation of the supravaginal cervix, is the body of the uterus retained in the pelvis? And how, in cases in which no vaginal prolapse precedes the elongation (e g., in "congenital prolapse"), is the elongation of the supravaginal cervix caused? Is it simply from traction of the cervix? All these difficult questions are resolved by the recognition *that prolapse is a hernia, that parts of the viscera* are expressed from some cavity, through some aperture or ring in a limiting wall of that cavity, *by a force or* series of forces arising within the cavity. From this we see at once that the compression or constriction exerted by the hernial ring upon the mass extruded at the region of the ring is not only the cause of the retention within the cavity (pelvis) of viscera, partly extruded (e g., body of uterus), but is also the cause of the visceral elongation in the region of the ring. Dr Blair Bell, however, paints no such picture, yet his concerted visceral procedures cure prolapse—and in 99 per cent of cases! How is this to be explained? Perhaps it is partly explained by the persistence of the limiting wall or floor in his cases—the unobtrusive musculature—and by the changes which may occur in it with the rest in bed, &c. The statement that many cases get well whatever the operative treatment rather points to some unseen agent at work. Yet cases remain in which this can be excluded, cases, for instance, which after operation by one surgeon and without an intervening parturition have soon relapsed, but have been followed by success with a more extended and complete visceral procedure And one readily admits that such visceral procedures do much, perhaps untold, good But how do they act?

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[1] Report on Researches on Sprue in Ceylon, pp. 143–145.

If, on the examination table, after replacing a prolapsed mass, one could, by a wave of the hand, convert the easily deformable tissues into a rigid mass, no return of the prolapse, even on the greatest bearing down, could occur. On the other hand, even in the normal, if the pelvic visceral tissues possessed the physical properties of discrete grains of sand, retention during activity would be impossible. The plastic operations on the viscera have the effect of increasing the viscosity of the visceral parts concerned, which serves itself to prevent their extrusion—rather participates in doing so. How else do colporrhaphies and the other operations mentioned, and especially the interposition operation, act? To suppose they act by restoring visceral ligaments which have been stretched by the prolapse, is absurd We cannot believe that colporrhaphies affect the ligaments. That colporrhaphies do not suffice in all cases Dr. Blair Bell has shown. Nor can we believe that Gilliam's operation suspends the uterus Dr. Blair Bell depicts a uterus greatly elongated after ventrifixation done for prolapse. If the uterus will stretch after its fundus has been fixed to the abdominal wall, we cannot believe that if Gilliam's operation had been done in a similar case that the uterus would have remained in its normal position. But in such a case Dr. Blair Bell does not merely perform Gilliam's operation, he operates on the utero sacral ligaments and now occludes Douglas's pouch But we cannot believe that this "reconstruction" of the utero sacral ligament cures the prolapse; for even if it maintained the cervix behind, it would not cure the cystocele For this the perineum must still be repaired and a colporrhaphy done. Surely these concerted procedures increase *the viscosity (or diminish the deformability)* of the visceral mass in the pelvis, and give a chance to the musculature beneath to carry on These operations are performed before the menopause, when the patient is in fairly good health, before the decline which later sets in. Since in many of these patients the prolapse only appeared some time, often many years, after the last child was born, it is plain the musculature, which had been able to carry on, can do so again.

Nor is it probable that the interposition operation cures prolapse by affecting the ligaments This operation, which, as Dr. Blair Bell insists, is only applicable after or near the menopause, has been very largely practised in America; and it is surprising it has not been employed more in this country. Dr. Watkins, to whose work I believe the operation largely holds its place across the water, in a private letter (dated June 23rd, 1919) writes: "My experience has been that all men who have sufficiently tested the transposition operation have become enthusiasts, and that criticism has been offered only by men who have not done the operation." But in one of his papers, Watkins attributes the action *of the operation to the effect it has of twisting the broad* ligaments By being twisted, these become shorter. and so are able to support the uterus. I cannot accept this explanation. Does not the interposition operation—or the transposition operation, as Watkins calls it—act by increasing the viscosity of part of the visceral mass, especially that part related to the pelvic floor aperture I believe it does, and I believe that is why it is so successful in curing prolapse, and especially cystocele. The only doubt in my mind about the use of the body of the uterus in this way, is the question of its freedom from disease, and whether it will remain in a healthy state It astonishes me that sepsis should so often have complicated this operation. I have only done it twice, and on the first occasion it seemed to me the simplest operation in surgery. In the second case, that of a very stout woman, in whom I was unable to map out the uterus bimanually even with the patient anæsthetised, I had difficulty in delivering the fundus and then found to my surprise a fibroid the size of a pigeon's egg occupying the left half of the fundus. I excised this, and removed two or three other quite small fibroids, and completed the operation. In both patients the wounds healed without any sepsis whatever. Dr. Blair Bell's experience with his 50 cases is similar. But I wonder what will happen in my second case, if any further seedling fibroids develop, and how difficult it would be to remove an interposed uterus if malignant disease supervened.

These considerations make me think that in spite of the excellent results achieved by Dr. Blair Bell's operative work, we have not yet reached the zenith of the operative treatment of prolapse Something yet remains to be done, but that can only be done when clear ideas obtain as to the nature of prolapse, and the causes which predispose to it are clear to the eye

I am, Sir, yours faithfully,

Rugby May 8th 1920 R. H. PARAMORE. F.R.C S Eng

To the Editor of THE LANCET.

SIR,—In THE LANCET of May 8th, p 994, Dr Blair Bell in his lecture on this subject makes two quotations from me, and says that "readers must draw their own conclusions," adding that one of the quotations viewed in the light of the other seems to him "more than illogical." I think he does not realise that there can be retroversion without prolapse, though not prolapsus uteri without retroversion To use a parable, you can bend without sitting down, though you cannot sit down without bending Moreover, you can get up again without straightening, and the patient can often be cured of prolapse without correction of the retroversion. I learnt this from Moritz, who investigated some couple of hundred cases three years and more after vaginal operations for prolapse, and found that sometimes the patient said she was completely cured, although on examination the uterus was found to remain retroverted The operation had converted these cases of prolapse into retroversions without symptoms. In such cases why open the abdomen merely to correct the retroversion, which is doing no harm?

I was foolish enough to read 113 papers on genital prolapse published in 1918. They were all quite unnecessary, and most of them described more or less new and elaborate technical devices The writers did not appear to know that the results to which they aspired could be secured more easily, and safely by methods which had already been published *ad nauseam*.

I am, Sir, yours faithfully,

Manchester, May 9th 1920 W. E. FOTHERGILL.

STERILISATION OF MILK BY ELECTRICITY.

To the Editor of THE LANCET.

SIR,—In the annotation under this title in your issue of this date there are one or two slight errors which in fairness to others I must ask you to contradict. The work was being done in the Thompson Yates Laboratories when I was appointed to Liverpool. I did not initiate the work, but at the request of the Health Committee of the city I reported on what had been done, suggested further experiments, and in conjunction with Mr. F. C. Lewis, who had carried out the original work, made various alterations in apparatus and methods. Throughout the work Mr. Lewis has been intimately associated with me, and the reports published are joint reports. I feel that it is unfair that credit should be given to me for work which could not have been undertaken and which certainly would never have been brought to a successful issue had I not had the valuable assistance and hearty coöperation of Mr. Lewis.

I am, Sir, yours faithfully,

University of Liverpool, May 8th, 1920. J. M. BEATTIE.

LICE AS A CAUSE OF RINGWORM.

To the Editor of THE LANCET.

SIR,—The letter of Dr. A. E. L. Wear in your issue of May 1st, on the relationship of lice to ringworm, reminds me of an occurrence which happened nigh 40 years ago. On that occasion a patient showed me her forearm, on which there was a well-marked circle of ringworm about the size of a threepenny-piece. When told the nature of the ailment, she asked if it could have been brought to her by a flea, for some four days previously, when serving in her shop, she felt herself bitten at the exact spot at which the ringworm had appeared, but not caring to ascertain at the moment what had taken place, had contented herself with rubbing the part smartly through her sleeve. When the customer had gone, she had turned up her cuff, and "out sprung the flea." I told her that there could be little doubt the flea had brought the disease, and that the vigorous rubbing had implanted it at the bitten part. I made a note of the matter as a curiosity, but failed to grasp its significance, although the fact and its explanation were alike offered to me.

I am, Sir, yours faithfully,

J. ALLAN GRAY, M.A., M.D., F.R.C.P. Edin.

Leith, May 3rd, 1920.

THE DEATH OF DR. A. P. SPELMAN: A MOVING APPEAL.

To the Editor of THE LANCET.

SIR,—I take the liberty of appealing to you on behalf of the widow and children of the late Dr. A. P. Spelman, of Dunmore, Co. Galway. Last week, when returning from a call, his motor-car skidded at a badly protected part of the road, and, overturning, killed him instantly. The deceased was only 26 years of age, and had not his life insured in any way.

Mrs. Spelman and two young children are now left absolutely destitute and totally unprovided for, and in these circumstances I would appeal to your readers for their help.

Thanking you in anticipation,

I am, Sir, yours faithfully,

P. J. DELANEY, M.B.

Claremorris, Co. Mayo, May 4th, 1920.

PS.—We are circularising all the local doctors. Subscriptions, which will be duly acknowledged, may be sent to myself or Dr. T. A. Heneghan, Ballindine, Co. Mayo.

LYME REGIS COTTAGE HOSPITAL.—It is proposed to erect a new cottage hospital at Lyme Regis. The building will contain accommodation for six male and six female patients. There will also be a children's ward, two private wards, operating theatre, and an X ray room. The site has been purchased, the plans prepared, and the chairman of the hospital has issued a strong appeal for financial support.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated:—

Surgery.—G. S. Ashby (Sect. I.), King's Coll. Hosp.; C. C. Bennett (Sect. I.), Guy's Hosp.; A. G. L. Brown (Sects. I. and II.), Westminster Hosp.; A. Furniss (Sect. II.), Manchester; M. Ibrahim (Sects. I. and II.), *Middlesex Hosp.; and* A. L. Urquhart (Sects. I. and II.), Edinburgh.

Medicine.—R. E. Laurent (Sect. I.), Westminster Hosp.; M. Pigott (Sects. I. and II.), Manchester; and A. L. Urquhart (Sects. I. and II.), Edinburgh.

Forensic Medicine.—E. Brazao, Middlesex Hosp.; J. A. Cohen, King's Coll. Hosp.; M. Pigott, Manchester; and A. L. Urquhart, Edinburgh.

Midwifery.—E. Brazao, Middlesex Hosp.; J. A. Cohen, King's Coll. Hosp.; A. McKenzie, Guy's Hosp.; M. Pigott, Manchester; R. M. Rodriguez, Barcelona; W. H. Summerskill, Guy's Hosp.; and A. L. Urquhart, Edinburgh.

The Diploma of the Society was granted to the following candidates *entitling them to practise medicine*, surgery, and midwifery:—M. Ibrahim, M. Pigott, and A. L. Urquhart.

THE WHITSUN CONGRÈS DE MÉDECINE AT BRUSSELS.—The Association of French-speaking Doctors is holding its fourteenth congress from Wednesday, May 19th, to Saturday, the 22nd, in the Palais des Académies at Brussels, under the presidency of Dr. Henrijean, professor of medicine at Liége, with whom are associated Professor Bordet and Professor Vandervelde (vice-presidents), and Professor René Verhoogen (secretary-general). The opening ceremony takes place on Wednesday at 4 P.M. The morning sessions commence at 9 A.M. on each following day, being devoted to (Thursday) Cardio-vascular Syphilis, (Friday) the Lipoids in Pathology, and (Saturday) the Therapeutic Value of Artificial Pneumothorax. The afternoon sessions at 4 P.M. are devoted to more general topics, such as the Social Campaign Against Syphilis, the Coagulation of the Blood, and Heredity. On Sunday an excursion to the Yser front and the Flanders coast is in prospect. Further information from the secretary-general, 22 rue Joseph II., Brussels.

UNIVERSITY OF MANCHESTER APPEAL: "THE KING'S SEVENTY."—The fertility of ideas and seductive processes evolved to bring grist to the educational mill of the University of Manchester bring also new surprises almost daily. The latest proposal is that 70 towns or districts or firms should be found, each of which should undertake to raise £5000 to swell the fund and crown the £500,000 required. These to be called "The King's Seventy." The idea has taken root and already two shoots have appeared. The Mayor of Blackpool has intimated to H.M. the King that Blackpool will raise £5000 and Crompton, a much smaller urban district, has intimated that it also will guarantee to raise an equal sum. The star on the barometer-ladder outside the University now stands at £184,000. The *Manchester Guardian* on May 7th issued an interesting illustrated supplement in aid of the same object. It contains, amongst other matters, a message from the Chancellor, Viscount Morley, who says: "It [a good university] is one of the keys and clues for that progress towards making a democracy from which there is nothing to fear and everything to hope." Viscount Haldane discourses on "The Mission of the Civic University," Sir Henry A. Miers on "The University and the Community," and Viscount Bryce on "The Function of a Modern University."

VENEREAL DISEASE CLINICS AND PROFESSIONAL SECRECY.—A deputation from the London and Counties Medical Protection Society, Ltd., was received by Dr. Addison at the Ministry of Health on May 6th. The deputation was introduced to the Minister of Health by Lieutenant-Colonel F. E. Fremantle, M.P., and the chairman of the London and Counties Medical Protection Society (Dr. C. M. Fegen), on behalf of the deputation, urged upon the Minister of Health the necessity for early legislation to protect the medical officers of venereal disease clinics from being compelled in the witness-box to violate the established principles of professional secrecy, and to give information of the nature of their patients' ailments and of anything else which came to their knowledge in their professional capacity. The medical officers of venereal clinics, he said, were being compelled in the law courts, under penalty of imprisonment for contempt of court, to reveal what their patients had communicated to them, believing that the information would be treated as absolutely confidential. The effect of this, it was pointed out, would be disastrous to the working of the venereal disease clinics, and would militate with fatal effect against the present efforts being made to cure and eliminate venereal disease. The Minister of Health expressed his cordial agreement with the views of the deputation, and promised to do what he could to promote legislation as suggested by the deputation. He said that he felt sure that public opinion would support the maintenance of professional secrecy in connexion with venereal disease clinics.

ROYAL SOCIETY OF MEDICINE. WHITSUNTIDE HOLIDAYS —The Society's house will be closed from Saturday, May 22nd, to Tuesday, May 25th, both days inclusive

THE Silver Médaille de la Reconnaissance Française has been awarded to Sir StClair Thomson for his valuable services in laryngology

SOCIETY OF SUPERINTENDENTS OF TUBERCULOSIS INSTITUTIONS —A general meeting of this society will be held at 122, Harley street, W, at 4 P M, on Monday, May 17th

CHELSEA CLINICAL SOCIETY.—The annual general meeting of this society will be held on Tuesday, May 18th, at 8 30 P M, at St George's Hospital Medical School

A MATINEE in aid of the Nurses' Home Fund of the Great Northern Central Hospital will be held at the Palladium to day (Friday)

Sir Thomas Horder will address the League of Youth on Tuesday, May 18th, at 8 30 P M, in Committee Room B, Central Hall, Westminster, taking as his subject Physical Welfare of the Young a National Duty Captain W E Elliot, M P, presides

Dr. J. S Fraser, of Edinburgh, will give a lantern demonstration of his micro photographic slides illustrating Diseases of the Internal Ear at the Central London Throat and Ear Hospital, Gray's Inn road, on Thursday, May 20th, at 5 P M

GRESHAM COLLEGE —Four lectures, illustrated by lantern slides, on the Vegetable Parasites Affecting Man, and the Diseases Caused by Them, will be delivered by Sir Robert Armstrong-Jones, at Gresham College, Basinghall street, London, E C, on May 18th, 19th, 20th, and 21st, at 6 P M Admission is free to men and women

SOCIETY OF MEDICAL OFFICERS OF HEALTH.—A meeting of tuberculosis officers will be held at 1, Upper Montague street, Russell square, London, W C, on Friday, May 28th, at 3 P M, under the presidency of Dr. F N Kay Menzies, for the purpose of forming a Tubercle Group within the Society of Medical Officers of Health All tuberculosis officers are invited to attend, even if not members of the society

HOSPITAL FOR SICK CHILDREN, GREAT ORMOND-STREET —SPECIAL POST GRADUATE COURSES —Mr A T Pitts will give four lectures on the Pathology, Results, and Treatment of Dental Sepsis in Children, on Wednesdays, at 4 P M, beginning on May 19th, in the out patient department Other courses of special instruction for post graduates in "Diseases of Children," now in progress at this hospital, include lectures on Disorders of the Ductless Glands in Childhood, by Dr F Langmead, the Development and Care of the Healthy Child, by Dr R S Frew, on Mondays and Wednesdays, at 4 P M, beginning on May 3rd (these lectures will be held in the out patient department), Deformities of Childhood, by Mr H A T Fairbank, Tuberculosis of Bones and Joints, by Mr O L Addison, and Methods and Significance of Pathological Investigations, by Dr D N Nabarro The lectures, unless otherwise indicated, are illustrated by cases, specimens, and radiograms Tickets of admission to each group—price £1 1s —may be obtained from the secretary at the hospital The lectures in pathology will be repeated during the months of June and July, and will be held in the Pathological Laboratory

BRITISH ORTHOPÆDIC ASSOCIATION.—A special meeting will be held in Edinburgh on June 4th and 5th, under the presidency of Sir Robert Jones The session on June 4th will be held in the systematic surgery class room, Edinburgh University In the morning a discussion on the Principles of the Correction of Congenital Talipes Equino varus and Particularly of Inveterate and Relapsed Cases will be opened by Mr. R C Elmslie Mr John Fraser will speak on the Results of Tendon Transplantation for Paralyses of the Muscles Below the Knee, Mr S Irwin on Acute Arthritis of the Hip in Infants, and Mr Harry Platt on Traumatic Dislocation of the Knee joint In the afternoon Professor V Putti (Bologna) will read a paper on the End Results of Arthroplasty of the Knee joint, Dr Murk Jansen (Leyden) on Hallux Valgus, Rigidus and Malleus, and Mr. E W Hey Groves on the Vital and Mechanical Factors in Bone grafting Some Notes on Bone, Fascia and Tendon grafting will be communicated by Mr A P Mitchell, and the Possibilities of End to end Suture After Extensive Nerve Injuries will be discussed by Miss Forrester Brown A demonstration of Kinematographic records illustrating the Various Types of Gaits in Children will be given by Mr. John Fraser At 7 30 P M. the association dinner will be held On Saturday, June 5th, at 9 30 A M, Sir Harold Stiles will operate and demonstrate cases at the Edinburgh Royal Infirmary.

BY a decision of Convocation on May 11th the degrees of Oxford University were opened to women on the same terms as to men

Sir William Osler has left his library of valuable medical and scientific works to the medical faculty of McGill University, Montreal His house at 13, Norham gardens, Oxford, in which Lady Osler has a life interest, has been bequeathed as the official residence of the Regius professor of medicine in the University

THE strike of workers in the drug and fine chemicals trade may become general A demand is made for an advance of 10s a week in wages for all grades Minimum rates for men are at present stated to be drug grinders, pill and tablet makers, 65s a week; packers, 62s 6d a week, bottle washers, 60s a week

PEOPLE'S LEAGUE OF HEALTH —At the Mansion House meeting on May 11th Mr C J Bond reviewed the loss to the nation occasioned by chronic ill health, and suggested that the individual responsibility of each citizen for his own health should be emphasised It was, he said, wrong to be ill if illness could be avoided The "will to health" was taken up by subsequent speakers

THE LATE MR F J. JOYNES —Francis James Joynes, M R C S, L S A, died recently at his residence, Wanswell, near Berkeley, Gloucestershire, in his seventy eighth year Mr Joynes had retired from active work, but at one time he had an extensive practice at Dursley, Gloucestershire, and was for many years medical officer of health for the Dursley rural district

TRINITY COLLEGE, DUBLIN: POST GRADUATE LECTURES —During the past winter the medical authorities provided four afternoon courses of five or six lectures each, open alike to medical men and all medical students The lectures, dealing with such useful subjects as the pathology of bones, gynæcological pathology, the pathology of nerves, and chemical pathology, were delivered respectively by Mr S Pringle, Dr R J Rowlette, Dr F C Purser and Dr W Fearon This term the Honorary Professor of Dermatology, Dr Wallace Beatty is delivering a course of three lectures on Parasitic Affections of the Skin Dr Gordon Holmes, of London, is to deliver his concluding Montgomery Lecture on the Mechanism of the Conjugate Movements of the Eyes

THE FIGHT AGAINST TUBERCULOSIS AT BRIGHTON —At an enthusiastic meeting under the auspices of the Women's Local Government Association and the Brighton, Hove, and Preston Division of the British Red Cross Society at Hove, on May 7th, the Countess of Chichester presiding, the following resolution was unanimously carried —

> That Parliament be urged to make such provision as will enable local authorities throughout the country to undertake comprehensive measures for the prevention of tuberculosis and for the treatment and care of tuberculous patients and their dependents

Among the speakers were Sir H Kingsley Wood, M P, and Sir Malcolm Morris The former said he believed that Brighton had been the first municipality to provide institutional treatment for tuberculosis He urged the need of proper, up to date, well equipped sanatoriums up and down the country Sir Malcolm Morris spoke of three great factors in the problem—heredity, infection, and environment, the greatest of which was the last Mr H Milner Black, a member of the Brighton Corporation, said 300 or 400 people died from tuberculosis quite needlessly in Brighton and Hove every year, and strongly urged a great campaign throughout the country, not merely to mend the disease, but to end it

NEW CLINICAL LABORATORIES AT SWANSEA —On May 7th Sir George Makins visited the city hospital to open the new clinical laboratories, recently erected through the generosity of Mr Roger Beck Sir George Makins, when performing the ceremony, spoke of the place filled by clinical laboratories in the science and mystery of medicine, the mystery is practised at the bedside, but the science on which it is based is founded on work carried out in the laboratory Without practice there would be danger of the science becoming an abstract study, but without the science practice would become empty empiricism The value of laboratory research had been immense, during the war, in improving the treatment of wounds, in combating the onset of shock, and in disclosing the causation of trench fever During peace, similar valuable results beneficial to the race might be expected from establishment of laboratories such as he was opening He congratulated Swansea on its new institute, which, by assisting the scientific work of the medical profession, would be a material asset to the health of the whole district Professor D Hepburn, speaking for the Welsh National School of Medicine, pointed out that Swansea was fortunate not only in its new institute, but also in its director, Dr. A F S Sladden.

Colonel Sir Edward Thornton, formerly in charge of the South African Military Hospital at Richmond, Surrey, has been appointed chief assistant to the medical officer of health for the Union of South Africa.

Royal Devon and Exeter Hospital and Exeter Dispensary: Proposed Amalgamation.—At the last meeting of the governors of the Royal Devon and Exeter Hospital it was reported that, as a result of a meeting of the representatives of the Hospital and Exeter Dispensary, it was decided to appoint two members of each institution, under the presidency of the mayor, to draw up a scheme for the amalgamation or better working of the two charities.

The late Dr. Symes Saunders.—George James Symes Saunders, M.D., M.R.C.P. Lond., M.R.C.S., L.S.A., D.P.H. Camb., died at his residence at Eastbourne, on April 28th, in his eighty-sixth year. He was educated at Exeter, and received his medical education at King's College Hospital, London. Dr. Symes Saunders was for nearly 50 years resident physician-superintendent at the Devon County Asylum, Exminster, but retired from active work about 15 years ago.

Armenian Red Cross and Refugee Fund: Fifth Annual Report.—The satisfactory balance-sheet of this fund is due less to the actual amount of donations and subscriptions in 1919, than to the fact that working expenses have been kept down to a minimum. It is stated that all work in connexion with this fund is voluntary and practically the only expenses entailed have been those of printing and postage. The needs of Armenia have not diminished, and parcels of clothes, especially socks, stockings, and boots, will be gratefully received by Miss Aganoor, the honorary secretary, Armenian Ladies Guild, 47A, Redcliffe-square, London, S.W. 10. Contributions and all letters relating to the fund should be address to the honorary secretary, Miss Emily J. Robinson, 35A, Elsham-road, London, W. 14.

Municipal Milk.—By a majority of one vote the Manchester City Council has approved the scheme for the municipalisation of milk distribution already outlined in THE LANCET. The proposal will be included in the next Parliamentary Bill. The Health Committee's arguments in support of the proposal were that as supplied at present Manchester milk would all be classed C 3 according to American grading, and would be allowed for use only for cooking and for manufacturing purposes; that impure milk was largely responsible for tuberculosis in children, and that one-third of the deaths of children under 5 years of age could be attributed to bovine infection. If men's beer contained as much dirt as children's milk it would be condemned for consumption. Adulteration was so common that Manchester citizens paid £35,000 yearly for water.

Devon Education Committee and Medical Fees.—At the last meeting of the Devon Education Committee it was reported that the appointment of assistant school medical officer at a salary of £400 per annum had been advertised in lay papers, as the medical papers had refused to insert the advertisement for a whole-time medical officer at a salary of less than £500 a year. Six applications had been received, but five of these withdrew because warning notices had been issued by the British Medical Association, and the remaining candidate was appointed. It was stated that the school medical officer for the Barnstaple district had just resigned, as he found it impossible to live on the salary of £400 a year. Eventually it was decided that the salaries of the school medical officers, which are from £400 to £500 yearly, should be increased annually by £20 until £500 are reached.

The late Dr. P. B. Kelly, D.S.O.—Peter Burrowes Kelly, who died on April 6th, was born in Ireland and received his medical education first in Dublin, where he obtained a medal for chemistry, histology, and medicine, and later at St. Bartholomew's and Charing Cross Hospitals, London. Having obtained the diplomas L.R.C.P. & S. Irel., and L.M. in 1911, he joined the Royal Navy on August 4th, 1914, and served first at Antwerp. He then volunteered for service on H.M. Transport *River Clyde*, the ship which was run ashore at Gallipoli to facilitate the landing of troops. He was wounded in the foot during the disembarkation, but still continued to attend the wounded; for this and other gallant services he was awarded the D.S.O. He served at Gallipoli until the army was withdrawn. His last appointment was at the Royal Naval College at Osborne, where he lived through several severe epidemics before his retirement from the Royal Navy in August, 1919. Immediately after leaving the navy, and without any interval of rest, he commenced civil practice in London, but his health rapidly declined, and he died on April 6th at the residence of his brother, Dr. J. Kelly, Crookstown House, Ballytore, co. Kildare, leaving a wife and one child.

The Royal Society Conversazione. — On Wednesday evening, May 12th, Sir J. J. Thomson, President of the Royal Society, received at a conversazione a large number of guests, for the most part well known in scientific circles. Demonstrations were given in the Committee and Meeting Rooms on the ground floor by Mr. Campbell Swinton (Exposition of Wireless Telephony in connexion with an experimental demonstration by the Marconi Company from Chelmsford); Sir Charles Parsons (Water-Hammer Cone demonstrating the Destructive Effect of Collapsing Vortex Cavities); and Mr. Edwin Edser (the Concentration of Minerals and Coal by Froth Flotation). Among the exhibits of particular medical interest may be mentioned the new instruments and diagrams from the Meteorological Office; a method of demonstrating flagellæ on micro-organisms, devised by Mr. J. E. Barnard and Dr. W. Topley; a demonstration by Professor Nuttall and Dr. D. Keilin of hermaphroditism in the louse; and Professor E. Mellanby's demonstration of the effect of vitamines on puppies.

Chelsea Hospital for Women.—The forty-ninth annual meeting of the Governors was held at the hospital on April 23rd, Sir F. W. R. Fryer in the chair. The report stated that 760 patients had been treated during the past year; the greater number were very critical cases and the rate of mortality was 1½ per cent. only. Increasing costs were giving the council grave concern, and it was feared that without the help of a much larger number of supporters the hospital would be seriously in debt by the end of the current year. The building of a home for the nurses was now an urgent necessity. Pending its completion half the beds in the hospital had to be used to house the nurses and servants, and consequently the list of patients awaiting admission was abnormally high. £7000 was in hand for the Home and £20,000 more was needed. The Convalescent Home at St. Leonards also needed additional support.

The Medical Society of London: Election of Officers and Presentation of Fothergillian Medal.—At the annual general meeting of the Medical Society of London held on May 16th the following officers and members of the Council were elected for the session commencing in October, 1920:—

President: Sir William Hale White.

Vice-Presidents: Dr. F. J. H. Bateman, Sir Hugh Rigby, Dr. Hugh Lett, Sir F. W. Mott.

Secretaries: Dr. W. H. Willcox, Mr. H. W. Carson.

Treasurer: Dr. J. Mitchell Bruce.

Librarian: Dr. Arthur Francis Voelcker.

Honorary Secretary for Foreign Correspondence: Dr. Herbert R. Spencer.

Council: Dr. Donald Armour, Mr. E. C. Bridges, Mr. C. C. Choyce, Dr. F. G. Crookshank, Dr. H. A. Des Vœux, Sir H. J. Gauvain, Dr. C. E. Lakin, Mr. T. P. Legg, Dr. E. E. Lewis, Mr. H. N. Matthews, Mr. C. S. Murray, Mr. C. J. Ogle, Dr. D. Lloyd Roberts, Mr. Percy Sargent, Mr. James Stewart, Dr. P. Montague Smith, Mr. W. W. Stocker, Dr. A. H. Vassie, Dr. G. E. Ward, Dr. Leonard Williams.

The annual oration was delivered by Sir D'Arcy Power, who chose for his subject "The Rev. John Ward and Medicine," which appears in this issue of THE LANCET. The President, Mr. V. Warren Low, on behalf of the society, presented the Fothergillian gold medal for 1917 to Sir Leonard Rogers for his work in connexion with dysentery. In expressing his thanks to the society Sir Leonard Rogers said that his appreciation of the honour was enhanced by the fact that he was a stranger to most of those present and that the medal was handed to him by his old friend and fellow-student, Mr. Low. It was a great encouragement to him to persevere with his work.

The late Dr. J. H. Fullarton.—John Hamilton Fullarton, who died suddenly at his residence in Porchester-gardens on May 6th, was a well-known marine biologist, and in later years he had a large consulting medical practice in the West-End of London. A native of Arran, he was born in 1856, and studied medicine at Glasgow and at Leipzig. At Glasgow University he graduated in science in 1880, obtaining the doctorate in 1891. He passed a brilliant studentship, being Exchequer Bursar in 1876 and winning the John Clark, Jun., Scholarship in 1879. In 1881 he proceeded to the M.A. degree, taking the highest honours in natural science, and in the same year won the G. H. Clark Fellowship in natural science. He was then for some years assistant to the late Professor John Young. In 1906 he obtained the triple qualification of Edinburgh and Glasgow. Dr. Fullarton, who had been an examiner at the University of Glasgow for the M.B., B.Ch. degrees, and a lecturer on biology at Queen Margaret College, was a Fellow of the Royal Society of Edinburgh, and a member of many foreign scientific societies. For some years he was zoological superintendent of the Scottish Fishery Board Marine Laboratory, and his writings on the subject of marine life have been translated into most European languages. A man of decided views, neither science nor medicine filled his whole life, and a few weeks before his death he was engaged in an active campaign at a Scottish by-election.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS

General Medical Council Bill

Sir HENRY CRAIK presented a Bill in the House of Commons on Monday, May 10th, "to amend Section 8 of the Medical Act, 1886" The *Bill*, which was supported by Captain ELLIOT and Lieutenant Colonel RAW, was read a first time The object of the Bill is to provide that all Direct Representatives on the General Medical Council are to retire at the end of a five years' period Vacancies occurring during the five years' period are to be filled only as to the remaining term of that period At present the Direct Representatives on the General Medical Council—that is, those elected by the general body of practitioners—hold office by Statute for five years The result has been that when death has occurred the successor to the dead representative is elected not to finish the term of his predecessor's office but for the full term of five years, with the consequence that elections have been multiplied The present Bill is introduced by Sir HENRY CRAIK, with the goodwill of the Privy Council

HOUSE OF COMMONS

WEDNESDAY, MAY 5TH

War Pensions Bill

Mr MACPHERSON (Minister of Pensions) in moving the second reading of the War Pensions Bill said that the administration of pensions cost as much as £5,000,000 a year The Great War was now over, and the situation had to be reviewed The call for economy was in the air If the transfer of administration proposed in the Bill was not agreed to, it would mean that pensions cases would have to be considered by two different departments Therefore, in the interests of economy and efficiency the Government had come to the conclusion that the administration of post war pensions should be handed over to the Service Departments Nothing in the Bill interfered with the existing powers of the Ministry of Pensions The Bill defined the end of the war as July 31st of this year, and kept alive Section 3 of the War Pensions Act, 1919, which provided for advances of pensions to pensioners for periods not exceeding six months It was further proposed to transfer to the Ministry of Pensions wound pensions to officers The work of the Pensions Committees had become largely stereotyped and standardised, and some of the country committees themselves realised that the continuance of their splendid work was no longer required He was taking power in the Bill to reorganise and regroup the various divisions in the county with a view to securing the best possible administration, while reducing as far as he could the amount of expenditure He proposed wherever he thought it desirable to substitute for the present county committees local committees acting independently over wide areas within the county He also sought powers to appoint a finance officer to take charge of the finance of committees at any time when he thought it necessary in the public interest The Ministry of Pensions would remain with all its powers to deal with the great work which it was called upon to do by various Acts in connexion with the pensions which had arisen out of the Great War All post war pensions would revert, as they would without legislation to the contrary, to the services in which the man had served —Mr HOGGE moved the rejection of the Bill He said that he had hoped that they had destroyed separate pension departments for the separate arms of the forces, but now it was proposed to set them up again —Several honourable Members criticised the decentralising policy of the Bill —The Bill was read a second time

Shortage of European Medical Officers in India

Sir WILLIAM JOYNSON HICKS asked the Secretary for India whether he was aware of the shortage of European doctors in the Indian Medical Service, and whether he was prepared to give an assurance to the Europeans in India that the utmost effort was being made to provide a European doctor within reasonable access of military and civilian officials and their families —Mr MONTAGU replied The shortage of European medical men in the Indian Medical Service has engaged my anxious attention for the last two years, and every effort is being made to overcome it I am alive to the great importance of a sufficient supply of European medical men

Portsmouth Claim for Compensation

Major Sir BERTRAM FALLE asked the Secretary to the Admiralty if he was aware of the claim to compensation made by Robert E Read ex hired skilled labourer, Portsmouth Dockyard, that this man had been ordered to come to London to be reported on by a medical referee, that Read s state of health was such that he could not travel without an attendant, which had been granted by the Admiralty, and must be conveyed in cabs to and from the station and the doctor, if there were no competent and honourable surgeons in Portsmouth who could be asked to report and save this invalid the trouble and pain of a long journey and the State an extravagance, and if he would see to the matter and future and similar cases —Sir J CRAIG replied Arrangements were made for Read s examination by the Government medical referee under the instructions of the Treasury and in accordance with the terms of the Government scheme of compensation In cases in which it is considered sufficient to have the man examined locally this is invariably done, but where the Admiralty and the private doctors disagree it is generally considered advisable to refer such cases for the decision of the referee On the available facts in this case arrangements were made accordingly, but in view of the suggestion that Read is unfit to travel the Treasury is in communication with the medical referee with a view to considering whether arrangements can be made for his examination by a local practitioner

Forthcoming Dental Legislation

Mr GILBERT asked the Minister of Health whether he proposed to bring in a Bill to carry out the recommendations of the Departmental Committee on Dentistry of last year, and if so, could he state when it would be introduced —Dr ADDISON replied A Bill is now in course of preparation, and it is hoped to introduce it before the end of this month

Notification of Births

Sir HENRY HARRIS asked the Minister of Health whether his attention had been called to the difficulty of obtaining convictions for failure to notify births under the Notification of Births Act, 1907, such difficulty being due to the wording Paragraph (3) of Section 1 of that Act, and whether it was proposed to introduce legislation to make effective the obligation to notify births —Dr ADDISON replied I am aware that the wording of the statute has caused difficulties, and the matter will receive consideration

Medical and Funeral Expenses of Service Men

Mr GRATTAN DOYLE asked the Secretary for War and Air if the War Office was empowered to pay the medical and funeral expenses of those officers and men who lost their lives within a few days of their arrival home after having been demobilised, in February, 1919, where it could be shown that the cause of death was the result of illness contracted on the journey through France owing to the authorities having failed to provide suitable accommodation during the journey, the officers and men having been required to travel in cattle trucks and having been held up at the French ports and required to sleep in tents for several nights when the thermometer was at zero, and, if the War Office was not empowered to pay such expenses, if he would obtain the necessary powers to do so —Sir A WILLIAMSON (Financial Secretary to the War Office) replied The powers of the War Office in these matters are not automatically terminated by demobilisation of the person concerned If the honourable Member will furnish me with any specific cases I will have them investigated —Mr DOYLE If the right honourable gentleman will look at the records of the War Office he will find that I have furnished him with some specific cases —Sir A WILLIAMSON I shall be very pleased to make inquiry

Motor-car Rebates for Medical Men

Sir WILLIAM JOYNSON HICKS asked the Minister of Transport whether it was intended, under the new scheme for the taxation of mechanically propelled motor vehicles, to grant any special privileges, exemptions, or rebates in respect of motor cars used by doctors and veterinary surgeons similar to the privileges enjoyed by them under the present system of taxation, and, if not, upon what grounds it was proposed to withdraw the existing privileges —Mr NEAL (Parliamentary Secretary to the Ministry of Transport) replied There is no intention to give special privileges to these classes of motor car users This question was carefully considered by the Departmental Committee on Taxation and Regulation of Road Vehicles, and the reasons for the withdrawal of existing privileges are set out in par 23 of their report The rebates which these users now enjoy were conceded partly in order to bring them into line with commercial motor vehicles, which pay no Inland Revenue duty and are entitled to a rebate of half the duty on motor spirit With the abolition of preferential treatment to commercial users the case for medical practitioners and veterinary surgeons necessarily fails There could be no justification for exempting members of two professions only Every person using a motor car in connexion with his profession or business would be equally entitled to preferential treatment The concession to medical practitioners and veterinary surgeons was made when motor cars were taxed as luxuries This is now no longer the case The proposed tax is in fact, a tax upon road users for road purposes

New Incidence of Income-Tax.

Major STEEL asked the Chancellor of the Exchequer whether his attention had been called to the severity of the proposed scale of graduation of income-tax in the Finance Bill on those whose income was between £600 and £2000 a year; and whether it was a fact that the proposed rate of tax per pound did not increase progressively with income between these two figures.—Mr. CHAMBERLAIN replied: My honourable and gallant friend is mistaken. Tax-payers whose total incomes fall within the limits specified in the question will, as a class, pay substantially less in income-tax under the Budget proposals than they would have had to pay under the law previously in force, and, as is shown by the graphs reproduced in House of Commons Paper No. 71, the effective rate of tax under the new scheme rises by an even progression between the two limits. I may add that the relief given under the Budget proposals to persons having incomes between £600 and £2000 per annum is no less than £3,500,000. There are, of course, individual cases in which the liability will be greater under the new scheme. Those cases arise from two causes—heavier charge thrown upon unmarried persons above £300 per annum and the smoothing of the jumps in the old scale.

Alleged Consumption of Deleterious Compounds.

Mr. CLOUGH asked the Minister of Health if his attention had been called to the alleged growth of the consumption of deleterious compounds, such as methylated spirits, among people affected by the high price and scarcity of ordinary stimulants; whether his department had any information on the subject; and what steps it was taking in the matter.—Dr. ADDISON replied: No evidence has been brought to my notice of the growth of the practice referred to, nor have I any special information on the subject. The cause suggested by the honourable Member is not a matter within my jurisdiction.—Mr. CLOUGH asked the Chancellor of the Exchequer if he had considered the possibility of people consuming deleterious substances owing to the high price and scarcity of ordinary stimulants; and whether he would reconsider the new taxation from the point of view of the public health.—Mr. CHAMBERLAIN replied: I do not share the apprehension entertained by my honourable friend.

THURSDAY, MAY 6TH.

Staff of the Pensions Ministry.

Mr. ROBERT YOUNG asked the Pensions Minister if he would state the number of persons employed by the Ministry and appointed during the year ended March 31st, 1920, at salaries over £350 per year; what was their previous experience of war pensions work or work qualifying them for such appointments; and how many were in receipt of salaries and income from other public funds, not including disability pensions.—Mr. MACPHERSON replied: The number of officers appointed to the Ministry during the year ended March 31st, 1920, and employed at salaries exceeding £350 a year is 51—namely, 13 permanent civil servants, 23 temporary officials with previous experience in other Government departments, 9 ex-Regular army and navy officers, and 6 temporary officials with special qualifications. It is not possible to say how many of the above-mentioned officers had previous experience of war pensions work. Approximately 15 are in receipt of income from other public funds, apart from disability pensions. These numbers exclude 552 medical officers appointed during the same period, of whom 12 are in receipt of income from other public funds.—Mr. SHORT: Can the right honourable gentleman say what public funds?—Mr. MACPHERSON: I cannot say offhand.—Mr. YOUNG: Will preference be given to those who have no pension or income over those who have? —Mr. MACPHERSON: I do not see how that is possible.—Mr. P. BILLING: Surely it is advisable to select from those who have served those who have no pensions or other income? —Mr. MACPHERSON: That certainly ought to be considered, but there are obviously other considerations.

Decisions by Local Medical Referee.

Mr. GRANT asked the Pensions Minister if he was aware that decisions come to by the local medical referee in the cases of disabled soldiers whom he had personally examined could be arbitrarily overruled by the Deputy Commissioner of Medical Services without this official having had opportunity of personal inspection of the cases; and if he could see his way to alter this regulation.—Mr. MACPHERSON replied: I am sending my honourable friend a copy of the revised Circular 804, from which he will observe that the Deputy Commissioner of Medical Services cannot overrule the medical referee on a question of treatment allowances unless and until the man has been re-examined either by the Deputy Commissioner himself or by a medical officer of the region.

Financial Position of the London Hospitals.

Mr. ROBERT YOUNG asked the Minister of Health whether he was aware that some of the London hospitals were in a serious financial position, and that appeals were being made in our elementary schools to the children, and through them to the parents, for assistance to prevent some of them partly closing down or otherwise curtailing their very necessary and beneficent work; and if he would say whether any steps were likely to be taken by legislation or other means to place these institutions on a sound footing to carry on their activities in the interests of the nation.—Dr. ADDISON replied: In view of the urgent representations which have recently been made to me in regard to the financial position of certain of the London hospitals, I am considering what steps can be taken to meet the difficulty, which, I hope, is only temporary, but I am not yet in a position to make a definite statement on this matter, which necessarily involves far-reaching issues.

Health Conditions in Berwick Rural District.

Mr. WILLIAM THORNE asked the Minister of Health if his attention had been called to the report of Dr. McWhir, medical officer to Berwick rural district, about the health conditions of the parish, where the people lived in hovels as a mere shelter from the wind and weather; if he was aware that the medical officer had called attention to the state of the overcrowded dwellings where young men and women were herded together in one sleeping compartment; was he aware that the medical officer also stated that the overcrowding was a close connexion to tuberculous disease; and if he would take action in the matter.—Dr. ADDISON replied: I am aware of the report in question. A report on the housing conditions has also been made by one of my officers. The first requirement is obviously that the district council should press forward with their new housing schemes, and I am taking steps to secure that this is done.

Recovery of Fats from Sewage.

Mr. ALFRED T. DAVIES asked the Minister of Health if he would state how many public authorities now possessed plant for the recovery of fats from sewage; and what steps, if any, were being taken by the Ministry to prevent fats so obtained from being used for the manufacture of foodstuffs —e.g., margarine.—Dr. ADDISON replied: So far as I am aware, there are only four local authorities which possess plants for the recovery of fats from sewage on a large scale. I have no reason to suppose that the fat recovered in these cases is used in the manufacture of foodstuffs. If my honourable friend has any information on the subject I should be glad to be supplied with it.

MONDAY, MAY 10th.

National Insurance Bill.

In reply to questions by Sir J. BUTCHER and Mr. MYERS, Mr. BONAR LAW stated that it was intended to bring the National Insurance Bill into operation on July 5th, 1920, and this would be possible if it passed quickly through its remaining stages. The Government hoped that it would be possible to get the Report and Third Reading stages in the House of Commons this week.

Milk and Dairies Bill.

Dr. ADDISON introduced a Bill "to amend the Milk and Dairies (Consolidation) Act, 1915." The Bill was read a first time.

TUESDAY, MAY 11TH.

Medical Officers at Pensions Ministry.

Mr. ROBERT YOUNG asked the Minister of Pensions whether the medical and other officers employed by the Ministry at salaries over £350 a year, and who, in addition, were in receipt of income from other public funds, were all disabled men; and would he say from which public funds such income was derived, and what was the amount in each case apart from disability pension.—Major TRYON (Parliamentary Secretary to the Ministry of Pensions) replied: The numbers, amount, and source of income from other public funds are as follows:—

No.	Amount of pension, &c.	Source.	No.	Amount of pension, &c.	Source.
1. ...	£120 ...	War Office.	1. ...	£500 ...	War Office.
1. ...	£150 ...	" "	1. ...	£510 ...	Admiralty.
1. ...	£164 ...	Admiralty.	2. ...	£600 ...	"
1. ...	£173 ...	War Office.	1. ...	£600 ...	War Office.
1. ...	£190 ...	Admiralty.	1. ...	£780 ...	" "
2. ...	£365 ...	War Office & Admiralty.	2. ...	£800 ...	" "
			1. ...	£900 ...	India Office.
1. ...	£426* ...	Sudan Govt.	2. ...	£1000 ...	War Office.
1. ...	£440 ...	India Office.	1. ...	£1010 ...	Admiralty.
1. ...	£451 ...	War Office.	1. ...	£1040 ...	War Office.

* This officer receives in addition £120 from the War Office.

The officers referred to are not all disabled, and the amounts given above do not in any case include disability pensions.

Venereal Disease in the Army.

Captain ELLIOT asked the Secretary for War whether he was aware of the continual and alarming rise in the incidence of venereal disease amongst the British troops in France and Germany; whether he would take all possible steps to combat this, and whether in particular the privilege of free leave passes to Great Britain, recently withdrawn from these troops, could now be restored —Mr CHURCHILL replied I am aware that there has been a rise in the incidence of venereal disease amongst the troops in France and Germany since the armistice The subject has received anxious consideration for some months past and I am satisfied that the authorities on the spot are taking all possible steps to combat it As regards the last part of the question, I would refer the honourable and gallant Member to my previous replies The decision was only reached after very careful consideration

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W

Tuesday, May 18th

GENERAL MEETING OF FELLOWS at 5 P M
Ballot for Election to the Fellowship (Names already circulated)

MEETINGS OF SECTIONS

Wednesday, May 19th

HISTORY OF MEDICINE (Hon Secretaries—Arnold Chaplin F G Crookshank) at 5 P M
Annual General Meeting—Election of Officers and Council for 1920–1921
Paper
Dr Withington The Medical Terms in Liddell and Scott

Thursday, May 20th

DERMATOLOGY (*Hon Secretary—Henry MacCormac*) at 5 P M
Annual General Meeting—Election of Officers and Council for 1920–1921
Cases (at 4 30 P M)
Dr Semon Livido Reticularis, with Positive Wassermann Reaction
Dr Parkes Weber Chronic Fibroid Subcutaneous Gummata associated with Indurative Cavernitis
Dr Bunch (1) Multiple Granulomata (2) Lymphangioma
Dr MacCormac Acanthosis Nigricans

Friday, May 21st.

OTOLOGY (Hon Secretaries—H Buckland Jones Lionel Colledge) at 5 P M
Annual General Meeting—Election of Officers and Council for 1920–1921
Notes on Cases by—
Mr H Bedford Russell (introduced by Mr Buckland Jones), Mr J S Fraser and others

ELECTRO THERAPEUTICS (Hon Secretaries—Walter J Turrell Stanley Melville)
Annual Dinner at the Langham Hotel at 7 30 P M Price of tickets, 10s 6d (exclusive of wine) Will Members wishing to attend send in their names to Dr Melville, 9, Chandos street W 1, not later than May 15th
Election of Officers and Council for 1920–1921

LONDON DERMATOLOGICAL SOCIETY, St John s Hospital 49 Leicester square W C
TUESDAY, May 18th —4 30 P M , Pathological Specimens Cases sent for Consultation Clinical Cases will be shown by Dr J L Bunch Dr W K Sibley, Dr W Griffith, Dr J Forbes Dr G White, Dr M G Hannay, and Dr Morrison

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W
MONDAY, May 17th —2 P M , Dr G Stewart Medical Outpatients 5 P M , Mr D Armour Principles of Abdominal Drainage
TUESDAY —Annual Meeting of Ladies Association College closed
WEDNESDAY —11 30 A M Mr MacDonald Demonstration of Cystoscopy 5 P M , Dr Beddard Practical Medicine
THURSDAY —10 30 A M , Dr Simson Gynæcological Demonstration 5 P M , Dr D Robinson Gynæcology
FRIDAY —12 15 P M , Dr Burnford Applied Pathology 2 P M , Mr Banks Davis Diseases of the Throat Nose and Ear
SATURDAY —10 A M , Dr A Saunders Medical Diseases of Children 12 noon Mr Sinclair Surgical Anatomy of the Abdomen
Daily —10 A M , Ward Visits 2 P M , In patient and Out-patient Clinics and Operations

NORTH EAST LONDON POST GRADUATE COLLEGE, Prince of Wales s General Hospital Tottenham N
MONDAY May 17th —2 30 P M Mr J B Banister Gynæcological
TUESDAY —9 45 A M Lieut Col R H Elliot Selected Eye Cases and Operations 2 15 P M , Selected Cases —Mr C H Hayton Catarrhal Conditions of the Nose and Throat with Associated Deafness 3 15 P M , Dr J Metcalfe Radiological Diagnosis of Pulmonary Tuberculosis 4 30 P M , Lecture —Dr R M Leslie Pulmonary Tuberculosis in Children
WEDNESDAY —2 30 P M Dr W J Oliver Dermatological
THURSDAY —2.30 P M Mr N Fleming Eye Cases Dr J Metcalfe Radiology
FRIDAY —2.30 P M , Dr C G Sundell Diseases of Children
SATURDAY —3 P M Mr Carson Selected Surgical Cases
Daily —2 30 P M Operations Medical and Surgical Clinics &c

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen square, W C 1

MEDICAL SCHOOL

MONDAY, May 17th —2–3 30 P M , Out-patient Clinic Dr Collier 3 30 P M , Dr Aldren Turner Neuroses
TUESDAY, May 18th —2–3 30 P M , Out-patient Clinic Dr Grainger Stewart 3 30 P M , Dr Risien Russell Demonstration of Ward Cases
WEDNESDAY, May 19th —2 P M , Mr Sargent Sequelæ of Head Injuries 3 15 P M , Mr Scott The Treatment of Meniére s Disease
THURSDAY, May 20th —2–3 30 P M , Out-patient Clinic Dr Farquhar Buzzard 3 30 P M , Dr Aldren Turner Psychoneuroses
FRIDAY, May 21st —2–3 30 P M , Out patient Clinic Dr Gordon Holmes 3.30 P M , Dr Collier Demonstration of Ward Cases
Fee for Post-Graduate Course £7 7s C M HINDS HOWELL, Dean

HOSPITAL FOR SICK CHILDREN Great Ormond street W C
Special Post-Graduate Courses in Diseases of Children, illustrated by cases specimens, and radiograms
1 —Dr F Langmead Disorders of the Ductless Glands in Children (in the Museum)—
TUESDAY, May 18th AND FRIDAY —11 30 A M Lecture III , Disorders of the Pituitary Gland Lecture IV , Disorders of the Adrenal Glands
2 —Dr R S Frew The Development and Care of the Healthy Child (in the Out patient Department)—
MONDAY, May 17th AND WEDNESDAY —4 P M , Lectures V and VI
3 —Mr H A T Fairbank Deformities of Childhood (in the Museum)—
MONDAY May 17th AND THURSDAY —4 30 P M , Lecture V Congenital Talipes Birth Palsy Lecture VI Flat Foot, Genu Valgum and Varum Curved Tibiæ
4 —Mr O L Addison Tuberculosis of Bones and Joints (in the Museum)—
TUESDAY May 18th AND FRIDAY —4 P M , Lecture V Hip Lecture VI Other Bones and Joints Knee Ankle, Shoulder Elbow Wrist &c
5 —Mr A T Pitts The Pathology Results and Treatment of Dental Sepsis in Children (in the Out patient Department)—
WEDNESDAY May 19th —4 P M Lecture I , The Pathology of Dental Caries Affections of the Gums
6 —Dr D N Nabarro Methods and Significance of Pathological Investigations (in the Pathological Laboratory)—
TUESDAY, May 18th AND FRIDAY —5 P M Lecture V , Examination of Urine Lecture VI , Vaccine Therapy

KING S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON)
A Course of Post Graduate Lectures on Syphilis is being given by various members of the staff of King s College Hospital *during the present year*
FRIDAY, May 21st —9 15 P M , Dr J C Briscoe Syphilis in Medical Practice (other Visceral Lesions)

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton S W
MONDAY, May 17th —2 P M Dr Melville *X Ray Department*
TUESDAY,—2 P M , Dr D Grant *Throat Department* 2 30 P M , Demonstration —Dr Wingfield *Cases Suitable for Sanatorium*
WEDNESDAY —10 30 A M , Dr Punch *Demonstration of Museum Specimens* 2 P M , Dr Gosse *Cardiographic Department* 2 30 P M , Demonstration —Dr Beaumont *Cases Unsuitable for Sanatorium*
THURSDAY —10 30 A M Dr Burrell *Artificial Pneumothorax* 2 30 P M , Demonstration —Dr Wingfield *Cases Unsuitable for Sanatorium*
FRIDAY —2 P M , Dr Melville *X Ray Department* 2 30 P M Demonstration —Dr Maitland *Cases Suitable for Hospital Treatment*
SATURDAY —1 P M Dr Batty Shaw Special Demonstration in the Out patient Department

NATIONAL HOSPITAL FOR DISEASES OF THE HEART Westmoreland street, W
MONDAY, May 17th —5.30 P M *Post Graduate Lecture* —Dr R Wells *The Electrocardiograph in Practical Medicine (1)*

CENTRAL LONDON THROAT AND EAR HOSPITAL Gray s Inn road, W C
THURSDAY, May 20th —5 P M Lantern Demonstration —Dr J S Fraser (Edinburgh) Micro photographic Slides illustrating Diseases of the Internal Ear

UNIVERSITY OF LONDON
Advanced Lectures in Physiology to Students of the University and others interested in the subject
A *Course of Eight Lectures* on Nutrition will be given at King s College for Women (Household and Social Science Department), Campden Hill road Kensington, W
MONDAY, May 17th, AND TUESDAY —5 P M , Lectures V and VI —Dr E Mellanby
A *Course of Eight Lectures on the Bio-Chemistry of Sterols* will be given in the Physiological Laboratory of the University, South Kensington S W
TUESDAY, May 18th —5 P M Lecture I Mr J A Gardner

UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE POST GRADUATE LECTURES at the Sheffield Royal Infirmary
WEDNESDAY, May 19th —4 P M , Prof Connell Clinical Cases Abdominal Lesions

MANCHESTER ROYAL INFIRMARY POST GRADUATE CLINIC
TUESDAY, May 18th —4 30 P M , Lecture —Dr D J Core Hysteria and Certain Indications for its Treatment (continued)

SALFORD ROYAL HOSPITAL AND ANCOATS HOSPITAL POST GRADUATE DEMONSTRATIONS at the two Hospitals alternately
THURSDAY, May 20th —4.30 P M Dr Gibson The Modern Treatment of Syphilis (At Salford Royal Hospital)

BOOKS, ETC., RECEIVED.

ALLEN, GEORGE, AND UNWIN, London.
Psycho-analysis. By Barbara Low, B.A. Introduction by E. Jones, M.D. Pp. 187. 5*s.*

AMERICAN MEDICAL ASSOCIATION PRESS, Chicago.
Transactions of the Section on Genito-Urinary Diseases of the A.M.A., June, 1916. Pp. 350.

BAILLIÈRE, TINDALL, AND COX, London.
Aids to Electro-therapeutics. By J. Mangus Redding, F.R.C.S. Pp. 196. 5*s.*
Practical Tropical Sanitation. A Pocket-book for Sanitary Inspectors in the Tropics. By E. P. Minett, M.D. Pp. 130. 4*s.* 6*d.*
The Treatment of Neuroses. By Ernest Jones, M.D. Pp. 233. 10*s.* 6*d.*
A Manual of Neurasthenia (Nervous Exhaustion). By I. G. Cobb, M.D. Pp. 366. 12*s.* 6*d.*

BRITISH MUSEUM (NATURAL HISTORY), London, S.W. 7. B. QUARITCH, DULAP AND CO., London.
Economic Series. The House Fly: Its Life History and Practical Measures for its Suppression. By Major E. E. Austen, D.S.O. Pp. 52. 1*s.* 6d.

CASSELL AND CO., London.
Diathermy in Medical and Surgical Practice. By Claude Saberton, M.D. Pp. 138. 7*s.* 6*d.*

GREEN, W., AND SONS, Edinburgh.
Essentials of Human Physiology. By Professor D. Noël Paton, M.D. 5th ed. Pp. 679. 25*s.*

HEINEMANN, WILLIAM, London.
The Radiography of the Chest. Vol. I., Pulmonary Tuberculosis. By W. Overend, M.D., B.Sc. Pp. 120. 17*s.* 6*d.*

HOLDER, ALFRED, Vienna and Leipzic.
Über Hämophilie beim Weibe. Kritische Studie nebst Erörterung der gynäkologischen Blutungen. Von Prof. Dr. C. Bucura. Pp. 92. M. 11.20.

LAURIE, T. WERNER, London.
Sterile Marriages. By J. Dulberg, M.D. Pp. 264. 6*s.*
Critical Age of Woman. By Walter M. Gallichan. Pp. 160. 6*s.*

LIBRAIRIE FELIX ALCAN.
Elements de Radiologie: Diagnostic et Therapeutique par les Rayons X. Par le Docteur Albert-Weil, Chef du Laboratoire d'Electroradiologie de l'Hôpital Trousseau. 2nd ed. Pp. 890. 40 fr.

LONGMANS, GREEN, AND CO., London.
The Principles of Ante-natal and Post-natal Child Physiology, Pure and Applied. By W. M. Feldman, M.B., B.S. Lond. Pp. 694. 30*s.*

MACMILLAN COMPANY, New York and London.
Common Diseases of the Skin, with Notes on Diagnosis and Treatment. By G. G. Campbell, M.D., C.M. Pp. 229. 21*s.*
Organisation of Public Health Nursing. By Annie M. Brainard. Pp. 144. 7*s.* 6*d.*

MASSON ET CIE, Paris.
Les Infections gangréneuses des membres consécutives aux blessures de guerre. Par G. Lardennois, chirurgien des hôpitaux, et J. Baumel, chef de clinique. Pp. 248. 12 fr.
Le Sympathique et les Systèmes associés, Anatomie clinique, sémiologie et pathologie générale du système, neuro-glandulaire de la vie organique. Par A. C. Guillaume. Préface du Professeur Pierre Marie. Pp. 160. 6.50 fr.
Traité de l'Immunité dans les maladies Infectieuses. Par le Dr. Jules Bordet, Directeur de l'Institut Pasteur de Bruxelles et professeur de l'Université. Pp. 720. 40 fr.
Travaux Neurologiques de guerre. Par Georges Guillain, professeur agrégé à la Faculté de Médecine de Paris, et J. A. Barré, professeur de Neurologie à la Faculté de Médecine de Strasbourg. Préface du Professeur Pierre Marie. Pp. 462. 18 fr.

MURRAY, JOHN, London.
A Lord Mayor's Diary, 1906–7. By William Purdie Treloar. To which is added the official diary of Micajah Perry, Lord Mayor, 1738–9. Pp. 260. 10*s.* 6*d.*
Microscopy: The Construction Theory and Use of the Microscope. By Edmund J. Spitta, L.R.C.P. Lond., &c., F.R.M.S. 3rd ed. Pp. 534 and plates. 25*s.*

SAUNDERS, W. B., COMPANY, LTD., London and Philadelphia.
Surgical Treatment. By J. P. Warbasse, M.D. Vols. II. and III. and index. Pp. 829, 861, and 123 respectively.

WRIGHT, J., AND SONS, Bristol.
The New Physiology in Surgical and General Practice. By A. Rendle Short, M.D. 4th ed. Pp. 291. 9*s.* 6*d.*

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

CANE, L. B., M.D. Cantab., B.C., has been appointed Honorary Physician to Peterborough Infirmary.

DOBBYN, M. G., F.R.C.S., L.R.C.P. Irel., Honorary Surgeon to the Bristol Eye Dispensary.

HARRIES, E. H. R., M.D. State Med. Lond., D.P.H., Medical Superintendent of the Birmingham City Hospital, Little Bromwich.

HUNT, E. R., M.D., B.C. Cantab., M.R.C.P. Lond., Honorary Assistant Physician to the Royal Sussex County Hospital.

LEITCH, J. N., M.B., B.S. Lond., M.R.C.S., L.R.C.P., Medical Officer in charge Electrical Department, Queen Mary's Hospital for Children (M.A.B.), Carshalton, Surrey, and Clinical Assistant Electrical Department, St. Bartholomew's Hospital.

ORMEROD, H. L., M.D., B.Ch., B.A.O. R.U.Irel., Honorary Surgeon to the Bristol Eye Dispensary.

PARSONS-SMITH, B., M.D., M.R.C.P., Assistant Physician to the National Hospital for Diseases of the Heart.

PRICE, F. W., M.D., F.R.S.Edin., Physician to the National Hospital for Diseases of the Heart.

STUTTAFORD, F. H., M.R.C.S., L.R.C.P. Lond., to be Certifying Surgeon under the Factory and Workshop Acts for Markfield.

St. Thomas's Hospital: BILLINGTON, C. M., M.B., B.Ch. Cantab., HALE, J., M.R.C.S., L.R.C.P. Lond., SPENCE, D. B., M.R.C.S., L.R.C.P. Lond., WOOD, F. G., M.R.C.S., L.R.C.P. Lond., CHURCHER, D. G., M.R.C.S., L.R.C.P. Lond., HUMPHREYS, R. M., M.B., B.Ch. Oxon., WHITCOMBE, R. C. P., M.R.C.S., L.R.C.P. Lond., WOOLRICH, W. G., M.R.C.S., L.R.C.P., Casualty Officers and Resident Anæsthetists; DAWSON, W. S., M.B., B.Ch. Oxon., BRETT, P. C., M.R.C.S., L.R.C.P. Lond., WARE, S. A. T., M.R.C.S., L.R.C.P. Lond., YOUNG, M. L., M.B., B.Ch. Cantab., Resident House Physicians; SMITH, J. FOREST, M.R.C.S., L.R.C.P. Lond., Resident House Physician for Children; ROBINSON, R. H. O. B., M.B., B.Ch. Cantab., SMART, A. H. J., B.A., M.B., B.Ch. Cantab., PERKINS, G., M.C., M.B., B.Ch. Oxon., BROCKMAN, E. P., M.R.C.S., L.R.C.P. Lond., Resident House Surgeons; MARRINER, H. I., M.R.C.S., L.R.C.P. Lond, Resident House Surgeon for Ear, Nose and Throat; HIGGINS, L. G., M.B. Cantab., House Surgeon to Block 8; GARSON, H. L., O.B.E., M.C., M.R.C.S., L.R.C.P., Lond., COOKE, R. C., D.S.O., M.C., M.R.C.S., L.R.C.P. Lond., Obstetric House Physicians; CARDELL, J. D. M., M.R.C.S., L.R.C.P. Lond., HOLMES, H. W. H., M.R.C.S., L.R.C.P. Lond., Ophthalmic House Surgeons. Clinical Assistants: CAVENAGH, J. B., M.C., M.B., B.Ch. Oxon., BYRNE, C. H. C., M.B., B.S. Lond., Throat; LOW, W. A., M.C., M.R.C.S., L.R.C.P. Lond., HALLIWELL, A. C., M.R.C.S., L.R.C.P. Lond., Skin; CAVENAGH, J. B., M.C., M.B., B.Ch. Oxon., BYRNE, C. H. C., M.B., B.S. Lond., Ear; LOW, W. A., M.C., M.R.C.S., L.R.C.P. Lond., Children's Medical; SPEAR, F. G., B.A. Cantab., M.R.C.S., L.R.C.P. Lond., LE MARQUAND, H. S., M.R.C.S., L.R.C.P. Lond., CARTER, E. E., M.R.C.S., L.R.C.P. Lond., Electrical and X ray Dept.; HOBBS, F. B., M.R.C.S., L.R.C.P. Lond., GOSSETT, A. C. V., M.R.C.S., L.R.C.P. Lond., Tuberculosis Dept.

Vacancies.

For further information refer to the advertisement columns.

Bethlem Royal Hospital, Lambeth-road, S.E.—Senior Asst. P. £600.

Birkenhead Borough Hospital.—Jun. H.S. £200.

Birmingham and Midland Hospital for Skin and Urinary Diseases, John Bright-street.—Hon. Asst. S.

Birmingham General Hospital.—H.S. £100.

Birmingham, West Heath Sanatorium.—Med. Supt. £600.

Birmingham, Yardley-road Sanatorium and Anti-tuberculosis Centre.—Second and Third Asst. Res. M.O.'s. £450 and £400.

Bradford Children's Hospital.—H.S. £180.

Bradford Royal Infirmary.—H.S. £200.

Bury County Borough,—Asst. M.O.H., &c. £600.

Canterbury, Kent and Canterbury Hospital.—Two Res. M.O.'s. £200 and £150.

Chester Royal Infirmary.—H.S. and Asst. H.S. £200 and £150.

City of London Hospital for Diseases of the Chest, Victoria Park, E.—H.P. £100.

Colchester, Royal Eastern Counties' Institution for Idiots, Imbeciles, and the Feeble-Minded.—M.O. £300.

Colchester, Severalls Mental Hospital.—Fourth Asst. M.O. £510.

Derby County Borough.—Asst. Tuberc. O. £500.

Doncaster Royal Infirmary and Dispensary.—Asst. H.S. £225.

Dorset County Council.—Asst. County M.O. £500.

Egyptian Government School of Medicine.—Med. Registrar. L.E. 600.

Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—Female Clin. Assts.

Enham Village Centre for Disabled Ex-Service Men, near Andover, Hants.—Asst. Med. Direct. £500.

Freemasons Hospital and Nursing Home, 237, Fulham-road, S.W.—Res. M.O. £250.

Galway, University College.—Professorships of Anat. and Phys.

Guildford, Royal Surrey County Hospital.—Third H.S. £150.

Halifax Royal Infirmary.—H.S. £200.

Hindley Urban District Council.—M.O.H. and School M.O. £850.

Holborn Union Infirmary, Archway-road, N.—Sec. Asst. M.O. £300.

Hospital for Women, Soho-square, W.—Clin. Assts.

Hull Royal Infirmary.—Senr. H.S. £200. Asst. H.S. £150. Asst. V.D. Officer and Cas. £250.

King's College Hospital, Denmark Hill, S.E.—Bacteriologist.

Kingston, Ont., Queen's University.—Prof. of Clin. Surgery. $5000. Prof. of Path., Prof. of Anat., and Prof. of Pharm. $3500 each. Prof. of Prev. Med. and Pub. Health. $3000. Asst. Prof. of Phys. $2000.

Leamington Spa, Warneford, Leamington, and South Warwickshire General Hospital.—H.P. and H.S. £200 each.

Leeds General Infirmary.—Res. M.O. at Ida and Robert Arthington Hospitals. £60.

Leeds Public Dispensary.—Res. M.O. £200.

Leicester City Education Committee.—Female Asst. Sch. M.O. £500.

Liverpool, Stanley Hospital.—H.S.'s. £150.

Maidstone, Kent County Ophthalmic Hospital.—H.S. £250.

Manchester, Ancoats Hospital.—Hon. Con. Oph. S. and Hon. P.

Manchester Children's Hospital, Gartside-street, Manchester.—Asst. M.O. £200.

Manchester Ear Hospital.—Hon. Asst. S.

Margaret-street Hospital for Consumption, 26, Margaret-street, W.—Pathologist. £50.

Metropolitan Asylums Board, Infectious Hospitals Service.—Jun. Asst. M.O.'s. £515 6*s.*

Middlesbrough, North Ormesby Hospital —Asst H S £200
Middlesbrough, North Riding Infirmary —Hon S
Middlesex County Council —Female Asst M O £500
Miller General Hospital for South East London, Greenwich road, S E —Hon Asst Ophth S
National Hospital for the Paralysed and Epileptic, Queen square, W C —Hon Gynæcologist
Newcastle-upon Tyne City and County —Maternity and Child Welfare M O £700
Newcastle upon Tyne, Royal Victoria Infirmary —Two Temp Hon Asst S
Northampton General Hospital —H P and H S £200 each
Norwich, Norfolk and Norwich Hospital —H P and Two H S 's £200
Nottingham General Hospital —H P Also Cas H S £200 each
Portsmouth Royal Hospital —H S £150
Preston and County of Lancaster Royal Infirmary —H S £180
Queen Charlotte s Lying in Hospital, Marylebone road N W —Asst Res M O £50
Queen s Hospital for Children Hackney road, Bethnal Green, E —Hon Anæsth £25 Also H S £100
Rotherham Hospital —Jun H S £150
Royal Chest Hospital, City road E C —H P £120
Royal College of Surgeons of England —Hunterian Professor and Arris and Gale Lecturer
Royal Dental Hospital and London School of Dental Surgery, Leicester-square W C —Lect on Bacteriology
Royal National Mission to Deep Sea Fishermen, Bridge House, 181, Queen Victoria street, London, E C —Medical Missionary
St Leonard s Hospital, 204, Hoxton street, N —Two Res Asst M O 's £400 and £350 respectively
St Peter s Hospital for Stone, &c , Henrietta street, Covent Garden, W C —Jun H S £75
Seamen's Hospital Society, Hospital for Tropical Diseases, Endsleigh gardens, N W —H P. £100
Sheffield Royal Hospital —Cas O and Asst Cas O £150 each
Sheffield Royal Infirmary —H P and H S £150 each
Southern Rhodesia —Med Inspector of Schools £866
South London Hospital for Women, South Side, Clapham Common, S W —Female Asst Path £150
Stamford, Rutland and General Infirmary, Stamford —H S £200
Stroud General Hospital —H S £200
Swansea County Borough —Asst M O £500
University College Hospital, Gower street, W C —Second Clin Asst
Walsall General Hospital —Female H S and Anæsth £175
Warwickshire County Council —Assistant County M O H £500 Female Asst County M O H £500
Weir Hospital, Grove road, Balham, S W —Res M O £150
West Bromwich and District Hospital —Res H S £200
West London Hospital, Hammersmith W —Surg Dent
West Riding County Council —Asst County M O £650 Two Sch Med Inspec £500
Wigan Infirmary —Senior H S £250
Winchester, Royal Hants County Hospital —H S £250
Worthing, West Sussex and Chichester Joint Education Committee —Asst Sch M O £500

The Chief Inspector of Factories, Home Office, S W , gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Blackford, Campbeltown and Gravesend

Births, Marriages, and Deaths.

BIRTHS.

BARNES —On May 3rd at Wiltshire House Wiltshire road, S W , the wife of Howell Wood Barnes, B A , M B , B C Cantab , D P H Cantab , of a daughter

BEAUMONT —On April 28th, at a nursing home, to Norah (nee Hamill), the wife of Dr G E Beaumont—a daughter

BIDWELL —On May 6th, at Woodchurch, near Ashford, Kent the wife of Surgeon Commander Lawrence Bidwell, R N (retired) of a son

CHALLENOR —On May 7th, at The Mount, Rhos-on Sea, N Wales, the wife of Major L T Challenor, R A M C T F , *of a daughter*

CROSBIE —On May 3rd, 1920, the wife *of* Douglas F Crosbie, M D , M C , Clarendon terrace Londonderry, *of a* daughter

MENZIES —*On May 10th, at* Egerton gardens, the wife of Dr F N Kay Menzies of a son

SEYMOUR-PRICE —On May 9th, at Sloane gardens, S W , the wife of Dr P Seymour Price of a son

TRETHOWAN —On May 9th at St Thomas s street S E , the wife of W H Trethowan, F R C S , of a son (John Durham)

THOMPSON —On May 4th at Priory mansions, Drayton gardens, the wife of Major W I Thompson, D S O , R A M C , of a daughter

MARRIAGES.

BISHOP—SCARBOROUGH —At Sheffield, on May 12th, Major Raymond S Bishop, M C late Lincolnshire Regt , to Hilda Mary Scarborough, M D

RIDDELL—STEVENS —On May 5th, at the British Consulate General, Antwerp and afterwards at the Church of St Boniface, Antwerp, Daniel Falconer Riddell M C , M B late Captain, R A M C , to Honor Paynter, eldest daughter of Mr and Mrs H W Stevens, Antwerp

SCOTT—KELLS —On April 29th, at St James s Church Piccadilly, W , Evelyn Denis Scott M B , M R C P B S , to Muriel Evelyn Kells elder daughter of Mr and Mrs John Kells, of Gerrard s Cross, Bucks

DEATHS.

INGLIS —On May 10th, at Eversfield place, St Leonards-on Sea, John Inglis, M A , M D , aged 59 years

N.B —A fee of 7s 6d is charged for the insertion of Notices of Births, Marriages, and Deaths

Notes, Short Comments, and Answers to Correspondents.

MEDICAL OFFICERS' EMOLUMENTS ON THE RAND.

WRITING on behalf of the East Rand Branch of the South African Medical Association, the secretary of the Association has intimated to the Kleinfontein Group Medical Society that the Association disapproves of the present rates paid by the society to its medical officers In view of the increased cost of living fair rates are urged The letter states · "We must therefore ask you to raise the fees paid to at least 4*s.* per head per month for whole time appointment, or—should you feel that your medical officer can undertake private practice without detriment to your members—3*s* 6*d* per head per month This will bring your society more into line with other societies along the Reef." The letter concludes imperatively "We feel that one month will give you ample time to make up your minds on the question, and we have therefore decided that Dr. Drever must cease work at the end of April unless our rates are agreed to " In reply, the secretary of the Kleinfontein Group Medical Society states that his committee is of opinion that the demand is unreasonable "The committee is quite prepared to pay a reasonable increase on the basis of the increased pay that the men themselves have received. They have obtained 40 per cent on their 1914 rates, and some have received only 20 per cent. The present appointment was advertised in 1913, and there were 30 applications from all parts of the Union and from Rhodesia, and there was one from England. The salary was £1000 per annum in January, 1914. The society granted a motor car allowance of £100 per annum In May, 1916, on threat of resignation, the salary was raised to £1500, and the demand now made was equivalent to £2500 per annum, plus private practice, estimated to be worth an additional £500 per annum "

INTRAVENOUS EUSOL IN MALARIA

Lieutenant Colonel P S Vickerman describes in the *Journal of the R A M C* for January ten cases of obstinate subtertian malaria treated successfully by intravenous injections of eusol after quinine had ceased to show effect Forty c cm was the usual dose of eusol containing 5 per cent. of hypochlorous acid, the solution must be freshly prepared Crescents disappeared first, then the other forms Blood counts, numerical and differential, improved, and a patient with malarial cachexia said he was a new man If other observers will give this method trial, and find results as hopeful, a great advance in the treatment of malaria will be to the credit of Lieutenant Colonel Vickerman, whose observations appear to have been made in Egypt

FOOD SHORTAGE IN SKYE

THE condition of the people of Skye and the Outer Islands owing to the prevailing food shortage was discussed at a meeting of the Inverness shire education authority in Inverness on April 29th Mr Nicol Martin, of Glendale read a letter which he had received from a retired teacher on the property of the Board of Agriculture in Skye The writer stated that last December and January, while influenza was raging, there was not an ounce of food but a few hard biscuits and some potatoes There was no milk except that of two cows, and this was distributed among the sufferers Six deaths occurred in that small district, including three school children Had their systems not been reduced by want of nourishment they might have survived, but they lacked any power of resistance During the same period the year before the position was as bad Out of 46 children in school one only had a piece of bread, and in only one house was there a grain of meal The situation was desperate and he (the writer) had sent to Portree for ten dozen loaves This relieved the position, as he was able to distribute 2 lb of bread to each person in the district The teacher who got supplies by post, often had to feed the younger pupils Some of those children left home at 9 A M and returned at 3 30 without having had any food, and with potatoes only awaiting them at home Several families remained away from school for want of food Rev Mr McLeod, North Uist, corroborated what Mr Martin had said, and added that the hardship was felt all over the Western Islands There were many children in Benbecula who had to be kept at home for fear they would faint in the schools The clerk stated that, in reply to their representations on the subject, an acknowledgment had been received from the Scottish Office, and a letter from the Ministry of Shipping stated that the matter was receiving very close attention, and that they would do all in their power to improve matters in connexion with transport facilities in Skye

OFFICIAL FOOD ANALYSIS IN VIENNA STOPPED.

WE learn from the *Economic Review* (May 5th) that the food analysis office in Vienna has been closed. The statement is as follows:—

> A notice has been posted up at the entrance to the Vienna Institute for Food Analysis announcing that the institute is closed till further notice. As to the reason for the sudden closing of an important public office no explanation from official quarters is yet forthcoming. The director of the institute, Dr. Schattenfroh, stated that he could make no communication, as he considered it a private matter. The public is therefore left to form its own conclusions.
>
> It is said that the costs of working have risen so enormously that the sum allocated in the Budget in quite insufficient. This is specially the case as regards the necessary reagents and chemicals. The costs of food analysis, however, are said to be charged always to the manufacturer or the vendor and covered by an increase in the price. Moreover, there are now very few foodstuffs whose exact analysis is necessary, since the majority of the population in the present scarcity will eat articles which in former times would not only have been rejected by the consumer, but prohibited because of their contents. The trade in food substitutes is so general that it is considered superfluous to investigate whether a certain article contains the alleged ingredients, so long as it is not actually injurious to health. The sphere of activity of the Food Analysing Institute is, therefore, very limited. The Office of Public Hygiene will no doubt reopen the institute as soon as possible. In the meantime the laboratory is available for the Vienna Chemists' Institute. (*Neue Freie Pr.*, Apr.8.m.)

The position must be serious when it is admitted that the trade in food substitutes is so general that it is considered superfluous to investigate whether a certain article contains the alleged ingredients so long as it is not actually injurious to health. It is not clear whether control has ceased also in regard to injurious ingredients. The public health may well suffer under this order.

THE PARAFFIN TREATMENT OF BURNS.

THE paraffin treatment of burns is a great advance, but its technique is being improved, and, in the *Journal of the R.A.M.C.* for February, Lieutenant-Colonel A. J. Hull describes the precise method he, after much experience, has come to consider the best. The résumé which follows is very much in his own words. The burn is washed or painted with 1 per 1000 aqueous flavine solution, followed by the application of No. 7 paraffin. "No. 7" paraffin is thus prepared. Melt 678 g. of paraffinum durum, add 250 g. of vaseline and 50 c.cm. of olive oil, with 2½ g. of β-naphthol (resublimed). Let the temperature of the mixture sink to about 55° C., then add 20 c.cm. of eucalyptus oil; stir and allow to solidify. The burn, which has had an antiseptic solution painted over it as we have said, is dried with gauze or an electric drier. A layer of paraffin is applied at a temperature of 55° or 60° C. A thin layer of wool is placed over the first layer of paraffin, and a second layer of paraffin at the same temperature painted over the wool. A dressing of wool and bandage covers the paraffin dressing which is changed every 24 hours. The paraffin should not be too hot or the layer will be too thin and will not peel off in a sheet. This dressing protects the epithelium and holds the tissues at rest, but if granulations become sluggish a scarlet red paraffin should be substituted ("No. 10" paraffin, which takes more trouble to prepare; see the paper). This treatment obviates pain, sepsis, and other complications, so is generally applicable. No other preparation has given so good results.

HOME HYGIENE.

WITHIN the limits allotted to the little manuals issued by the St. John Ambulance Association for the instruction of their students in health matters Dr. John C. Thresh[1] has contrived to write a valuable and comprehensive book on domestic and personal hygiene. As medical officer of health, and now consulting medical officer for a home county, he has had opportunities of closely studying those conditions, the presence or absence of which determines the health, and therefore the efficiency, of the community. The 13 chapters into which the book is divided embody the substance of six lectures dealing with disease in general, its cause, and prevention, the house and its construction, the hygiene of economy, and the rôle of air, water, food, and clothing. The author points out that it should be the aim of every citizen not only to maintain his health up to normal standard, but to raise the health standard of the race. What is required to strengthen the awakening health conscience of the nation is a right understanding of health and its meaning to the community and a knowledge of what is being done by the State and the medical profession in this direction. Dr. Thresh briefly but clearly brings out these points in his early chapters by reference to health statistics, the work of the medical officer of health, the uses of tuberculosis dispensaries, sanatoriums, school inspection, maternity welfare, and so forth. The chapters on lighting, heating, and ventilation contain useful illustrative diagrams, and in the section on food the reader is properly introduced to the important subject of vitamines. An appendix calls attention to the serious menace to health of venereal disease and to the special centres for treatment now opened up in nearly every county. The book is a thoroughly practical one and should be studied and assimilated by every intelligent adult in the country, and especially by adolescents whose tendencies have not yet hardened into habits.

ROYAL WEST SUSSEX HOSPITAL.

OWING to many generous subscriptions, donations, and valuable gifts made during the year, coupled with the fact that many of the patients were paid for by the War Pensions Committee or the County Council, the annual report of the Royal West Sussex Hospital at Chichester shows a balance of £35 6*s*. 2*d*. Since donations and gifts could not be depended on, an appeal was made at the annual meeting on April 29th for a steady income from subscriptions. Expenditure had risen from £5000 before the war to £9140. Under the direction of Lady Garland, at that time Mayoress of Chichester, the Alexandra Day Committee had organised a fête in Priory Park, which resulted in a sum of £881 19*s*. for the hospital. A balcony had been named the "Lady Garland Balcony" as a slight acknowledgment of this lady's efforts. During the year £2000 had been received from the British Red Cross Society, and £500 from the Midhurst Farmers' Red Cross Sale Committee. The governors decided that these sums should be utilised in making structural alterations and improvements, and also sanctioned the allocation of a legacy to necessary improvements to the laundry. The innovation of a pound day at this hospital during the year had proved a great success, and the X ray department had been thoroughly reorganised. Dr. E. H. Buckell, who had been succeeded by Dr. H. E. Rutherford as honorary physician, was appointed honorary consulting physician. The hospital dealt with 858 in-patients during the 12 months.

THE centenary of Florence Nightingale's birth was celebrated this week. She was born at the Villa La Columbaia, Florence, on May 12th, 1820.

Communications, Letters, &c., to the Editor have been received from—

A.—Auxiliary Royal Army Medical Corps Fund, Lond., Hon. Sec. of; *Answers*, Lond., Editor of; Messrs. Allen and Hanburys, Lond.

B.—British Orthopædic Association, Lond.; Miss W. F. Buckley, Lond.; Prof. J. M. Beattie, Liverpool; Miss C. M. Beeman, Lond.; Dr. H. Brown, Chislehurst; British Colloids, Ltd., Lond.; Mr. F. J. C. Broome, Harrogate; Sir J. W. Byers, Belfast; Sir J. Bland-Sutton, Lond.

C.—Sir J. Crichton-Browne, Lond.; Chelsea Clinical Society, Sec. of; Central London Throat and Ear Hospital; Mr. F. R. Cave, Bath; Mr. R. Craik, Lond.; Dr. G. J. R. Carruthers, Edinburgh; Mr. H. Carpenter, Desford; Dr. C. Coombs, Bristol.

D.—Mr. M. M. Dow, Falkirk; Dr. O. T. Dinnick, Lond.; Dr. H. H. Dale, Lond.; Dr. P. Delmas, Montpellier; Dr. W. A. Daley, Bootle; Dr. P. J. Delaney, Claremorris; Dr. J. G. Dobson, Cambridge.

E.—Eustace Miles Foods, Ltd., Lond.; Major-Gen. Sir George Evatt, Lond.; Mr. W. McA. Eccles, Lond.; Dr. A. Erdos, Nagyvarad.

F.—Mr. H. Frankling, Harrogate; Dr. W. E. Fothergill, Manchester; Dr. Z. P. Fernandez, Leeds; Food Education Society, Lond.

G.—Dr. H. O. Gunewardene, Lond.; Dr. G. Galli, Rome; Mr. J. A. Gray, Leith.; Dr. R. P. Garrow, Lond.; Great Northern Central Hospital, Lond.

H.—Mr. C. J. Heath, Lond.; Mr. J. T. Henderson, Pietermaritzburg; Dr. C. O. Hawthorne, Lond.; Mrs. Hodgkinson, Warrington; Surg.-Lieut.-Commd. F. G. Hitch, R.N.; Holborn, Medical Officer of Health of; Dr. P. Hamill, Lond.; Mr. R. K. Howat, Middlesbrough.

J.—*Journal of Industrial Welfare*, Lond., Editor of.

K.—Col W. G. King, I.M.S. (retd.), Lond.

L.—Dr. J. D. Leigh, Sunderland; London Chamber of Commerce; London Dermatological Society.

M.—Dr. W. Makeig-Jones, Torquay; Messrs. Mills and Boon, Lond.; Ministry of Health, Lond.; Medico-Psychological Association of Great Britain and Ireland, Lond.; Middle Classes Union, Lond.; Miss H. Masters, Lond.; Mr. W. Melland, Manchester; Medical Research Council, Lond.; Mr. R. MacIntyre, Lond.

O.—Ophthalmological Society of the United Kingdom, Lond., Hon. Sec. of.

P.—Mr. H. J. Paterson, Lond.; Major F. J. W. Porter, Bombay; Dr. G. L. K. Pringle, Harrogate; Dr. R. H. Paramore, Rugby; Col. J. J. Pratt, I.M.S. (retd.), Lond.; People's League of Health, Lond.

R.—Royal Society, Lond., President and Council of; Royal Institute of Public Health, Lond., Sec. of; Royal Society of Arts, Lond.

S.—Society of Medical Officers of Health, Lond., Executive Sec. of; Society of Superintendents of Tuberculosis Institutions, Sutton, Surrey; Society for the Prevention of Venereal Disease, Lond.; Society of Apothecaries of London, Sec. of; Scottish Board of Health; Save the Children Fund, Lond.

T.—Dr. T. Thompson, Lond.; Dr. W. E. Tinley, Sandsend.

W.—Dr. W. B. Watson, Harrogate; Dr. A. J. Whiting, Lond.; Dr. L. Williams, Lond.; Dr. C. Westman, Lond.; Dr. A. M. Webber, Nottingham; Mr. H. Warner, Fakenham; Mr. R. Warren, Lond.

Communications relating to the editorial business should be addressed exclusively to the Editor of THE LANCET, 423 Strand, London, W.C. 2.

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[1] Domestic and Personal Hygiene, or the Gospel of Cleanliness. By J. C. Thresh, M.D., D.Sc., Consulting Medical Officer of Health to the County of Essex. London: St. John Ambulance Association. 1920. Pp. 266. 2*s*. 6*d*.

Address

NEO-NATAL MORTALITY.

Being the Frederick A. Packard Lecture of the Philadelphia Pediatric Society, delivered on Feb. 10th, 1920,

BY SIR ARTHUR NEWSHOLME, K.C.B., M.D., F.R.C.P. LOND.,
LATE PRINCIPAL MEDICAL OFFICER OF THE LOCAL GOVERNMENT BOARD.

GENTLEMEN,—While I highly appreciate the honour of giving this Packard Lecture to the Philadelphia Pediatric Society, I realise the impossibility of making any medical contribution to your specialty and the necessity of limiting myself to the public health aspects of my subject, in which I have for many years been concerned. I also appreciate the difficulty arising from the fact that my remarks relate to obstetrics more than to pediatrics. Although I do not venture to define the line of demarcation between these special branches of medicine, much of the success of the work of pediatrists depends on the normality of the expectant mother and of the unborn infant, not only in regard to mental development, but also more generally; and the conditions likely to aid in securing normal birth and adequate skilled care in the first weeks after birth are of vital interest to you.

Among the outstanding events in the medico-sociological history of the last 50 years a foremost position must be given to the steady decline of the birth-rate, which has occurred in most civilised countries, and to the increased attention devoted to the welfare of infants and their mothers.

BIRTH-RATE IN RELATION TO INFANT MORTALITY.

It would carry us too far afield to discuss the lowered birth-rate and its undoubted relation to the decrease in infant mortality, owing, in part at least, to the fact that small families occur in social circumstances which otherwise favour infantile survival. Let me, however, state categorically the following points, which need to be borne in mind. In districts and countries in which no reduction of the birth-rate has occurred infant mortality has declined. In countries in which both rates have declined the birth-rate (as in England) was declining steadily for over 20 years before any decline of infant mortality began. Many districts with a low birth-rate have a high infant mortality-rate; and although a large family, especially if not adequately spaced, may mean impoverishment and poverty of parents, with neglect of children in essential respects, there is no reason to think that a correspondingly large family under improved social conditions would be otherwise than favourable to a healthy and ideal family life.

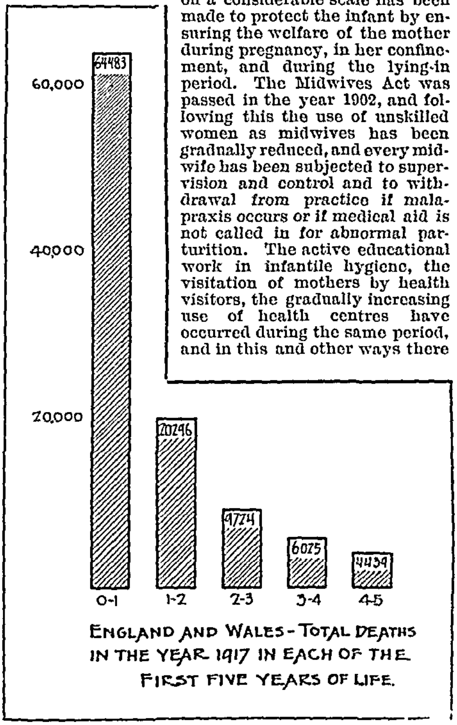
The lowered birth-rate has undoubtedly been one of the factors leading to recent activities to secure the preservation of child-life. The single statement that in England and Wales 9000 fewer births took place weekly in 1914, before the effect of the war began to be felt, than would have occurred if its population had experienced a birth-rate equal to that of the year 1876, and that in consequence a decrease of about half a million fewer births resulted, serves to remind us that although in England our growth of population by excess of births over deaths still amounts to 1 per cent. per annum we are approaching, unless the course of events is changed, a period when natural growth of population will cease, and England—and I may also add America—will be dependent on immigration for further increase of population.

In passing from this aspect of the subject it is not inappropriate—the child being the wealth of the future—to recommend the avoidance of "the sad heresy of celibacy" (*Punch*) and the contracting of early marriages, especially by those who now disproportionately avoid them, as necessary not only in restoring and maintaining the success of family life, but also in securing the same standard of sexual morality for both sexes and in avoiding the ravages of gonorrhœa and syphilis, two of the greatest enemies of child-life and of maternal health.

Dr. Emmett Holt,[1] in an interesting historical sketch of infant mortality, has drawn attention to some of the more important motives which have led to the increased attention which has been given to this subject in the last 40 years. In France, which led the way in respect of the day nursery, of societies for encouraging maternal nursing, and of *gouttes de lait*, the failure of the population to increase undoubtedly had great influence in securing action. In England attempts at controlling infant mortality began on definitely public health lines. But it was not until 1902 in England that a definite and continuous reduction in infant mortality began; and in the production of this result a large share of credit must be given to the "concentration on the mother and the child" which has been a striking feature of the last 20 years.

It is chiefly during the last ten years that action has extended towards the point at which logically it ought to have begun, and organised effort on a considerable scale has been made to protect the infant by ensuring the welfare of the mother during pregnancy, in her confinement, and during the lying-in period. The Midwives Act was passed in the year 1902, and following this the use of unskilled women as midwives has been gradually reduced, and every midwife has been subjected to supervision and control and to withdrawal from practice if malapraxis occurs or if medical aid is not called in for abnormal parturition. The active educational work in infantile hygiene, the visitation of mothers by health visitors, the gradually increasing use of health centres have occurred during the same period, and in this and other ways there has been increasing effort to restore to its former integrity family life, which had been seriously encroached upon by the conditions of town and industrial life. It is not one of the least of the valuable by-products of the calamitous World War that it has done much to restore the status and ideal of motherhood, and to make us realise that on this depends the future well-being and happiness of mankind.

FIG. 1.



ENGLAND AND WALES–TOTAL DEATHS IN THE YEAR 1917 IN EACH OF THE FIRST FIVE YEARS OF LIFE.

In considering infant mortality we first of all think of it as part of general mortality at all ages. The primary objects of preventive medicine are to transfer as many deaths as possible from the earlier to the later periods of life, to prevent the larger mass of non-fatal illness which, from the point of view of the community, is even more serious than early death, and to raise the general standard of health of the population.

We scarcely realise the difference between the number of deaths in each of the first five years of life. This is shown graphically in Fig. 1.

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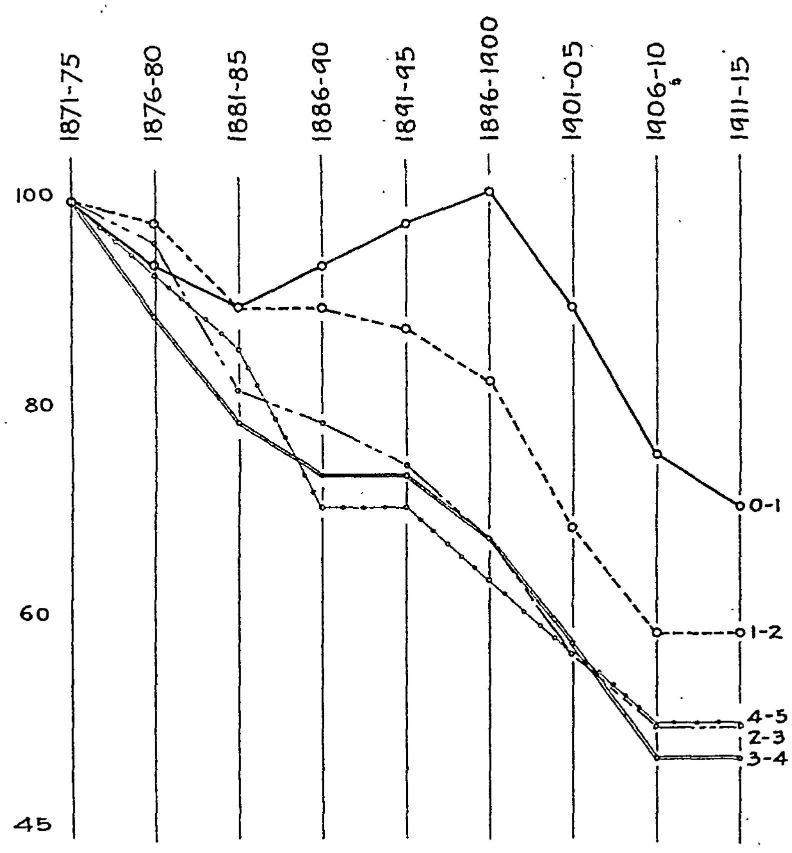
[1] Archives of Pediatrics, vol. xxx., No. 12, December, 1913.

Fig. 2 shows how much more slowly infant mortality in infancy has been brought under control than mortality in the next four years of life.

In view of the commonly entertained error that infant mortality may, on the balance, be selective in character, securing survival of the more robust, it is noteworthy that the parts of England which have the highest infant mortality continue at higher ages to experience a higher death-rate than more favoured districts. Any possible elimination of the weakest by natural selection which may have occurred is accompanied to a preponderant extent by the manufacture of weaklings and by an excessive death-rate at older ages, due to continuance throughout the whole of life of the evil conditions which caused the excessive infant mortality.

FIG. 2.



ENGLAND AND WALES—RELATIVE DEATH-RATES FOR EACH OF THE FIRST FIVE YEARS OF LIFE IN QUINQUENNIAL PERIODS FROM 1871-75 TO 1911-15, THE DEATH-RATE AT EACH AGE-PERIOD IN 1871-75 BEING STATED AS 100.

From the economic standpoint attack on infant mortality offers abundant scope for action. Here is a period representing about one-eightieth part of the whole life; but in this period 1 out of 9 or 10 total deaths occurs; furthermore, the state of health in infancy in large measure determines the health standard of the whole of life.

From the same standpoint the mortality under one month, first described by Ballantyne as neo-natal mortality, also is especially important. At least one-tenth of the total deaths at all ages occur in infancy; one-half of these infantile deaths occur within the first three months, one-third within the first month, and one-fifth within the first week after live birth.

If, therefore, it were practicable to halve these early or neo-natal deaths a greater saving of life could be obtained than by halving the death-rate at any other period of life of equal length. There is ample work for further preventive measures against infant mortality in the last 11 months of the first year; but the most fertile and least tilled soil is that of the neo-natal period.

In view of the statement commonly made that infant mortality during the first month is chiefly due to developmental conditions, and is practically beyond control, let us examine mortality in this period more closely. In Fig. 3 the share which developmental and wasting diseases have in causing total infant mortality is shown. It will be noted later that it bears a very varying part in different counties of England. In this diagram the above group of diseases includes deaths from premature birth, congenital defects, injury at birth, want of breast milk, atrophy, debility, and marasmus. I have purposely grouped all these together because of the unsatisfactory certification of causes of death of infants dying in the earlier weeks of life. Throughout the whole of infancy medical certification of deaths is much less satisfactory than for deaths at any subsequent age, and it is of but little use to advise physicians to be more accurate in their certificates until we have more exact pathological knowledge of the causes of early infant mortality. Some valuable research work has been done in this field, but it needs to be greatly extended, and such work would doubtless add greatly to our armamentarium against early infant mortality.

In an official report I have analysed the above group of causes of death further, and it appears that nearly 90 per cent. of the deaths from premature birth and congenital defects, and about 40 per cent. of the deaths from atrophy, debility, and marasmus occur in the first month after birth. It appears, further, that there has been much transfer of certification between these various headings, and that it is probably not justifiable to infer, as has often been done, that the mortality from premature birth has increased in recent years.

NEO-NATAL MORTALITY NOT IRREDUCIBLE.

We are on safer ground when we base our conclusions on total deaths in the first week and in the first month after live birth; and in view of the accurate registration of births and deaths in England I may be excused for taking illustrations from past official English reports. The facts set out below give an effective quietus to statements that neo-natal mortality is practically irreducible.

The following figures from my official report on Infant and Child Mortality (Cd. 5263), which gives death-rates for the year 1908, show the relative proportion of mortality in different parts of infancy, and the neo-natal mortality in different areas.

Infant Death-rate per 1000 Births.

—	Under one week.	Under one month.	Total under one year.
England and Wales	24·3	40·3	120·4
County of Durham	33·8	52·1	151·0
„ Glamorgan ...	24·8	46·1	154·3
„ Hereford	18·2	31·2	75·8
„ Oxford	20·9	30·6	73·0

Infant Death rate per 1000 Births among—

	Infants in first week after birth		Infants in first month after birth
Workington	41 4	Workington	61 0
Dewsbury	41 4	Blyth	58 0
Batley	37 5	Batley	57 7
Barnsley	31 2	Dewsbury	56 7
Bradford	30 7	Aberdare	49 4
St Helens	30 3	Walsall	49 3
Doncaster	19 7	Guildford	29 4
Edmonton	19 1	Holborn	28 0
Crewe	19 0	Penge	27 2
Heywood	16 9	Watford	25 9

It is evident that neo natal mortality varies greatly in different communities It varies also greatly in different sections of the same district, whether it be urban or rural There is no reason to assume that there are any such general variations in the vitality or physical efficiency of mothers as will explain these differences, and we must, I think, conclude that a large share of the loss of precious lives shown above is caused by removable influences, post natal, as well as natal and pre natal

Dr. T. H C. Stevenson in the English Registrar General's Annual Report for 1913 has given data from which it can be inferred that in England and Wales nearly 25 per cent of the total births occurred under circumstances involving a sacrifice during the first month after birth of nearly 50 per 1000 of the infants born; while for over 2 per cent of the births the corresponding sacrifice was only 20 per 1000 of those born. Nor could social position be brought forward in explanation of this extraordinary discrepancy, for in the most unfavourable group were infants of waiters, navvies, textile workers, dress makers, coal miners, and many others, while in the favourable group were infants of copper miners, motor mechanics, hosiers, boot dealers, glove makers, and many others

We must, therefore, accept the highly satisfactory conclusion that *this early infant mortality is in large measure preventable*

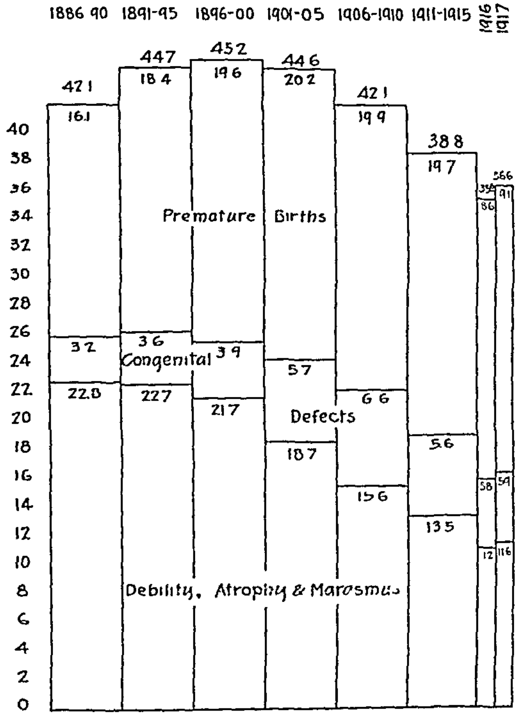
DO INFANTS "START FAIR" AT BIRTH?

Before considering means for preventing preventable mortality, we may glance at the fellow fallacy to the one exposed above—viz, that infants start fair at birth, or in other words are born in a fairly equal state of health It is worth while to pursue this inquiry, inasmuch as incidentally it reveals some of the more important lines along which the prevention of neo natal mortality must proceed Converging lines of evidence demonstrate the error of the above statement —

(*a*) The enormous differences in mortality in the first week and in the first month after birth must in large part be due to differences existing at the time of birth If further evidence is required, it is furnished by

(*b*) The varying prevalence of syphilis in different circles Thus Dr. Stevenson has shown that the death rate from syphilis in illegitimate infants is eight times as great as that of legitimate infants; and although similar statistics cannot be given for other classes, we know that syphilis is a large and varying cause of illness of mothers, of stillbirths, and of serious disease and mortality in infants born alive

FIG 3.



ENGLAND AND WALES—DEATHS OF INFANTS UNDER ONE YEAR PER 1000 BIRTHS FROM "DEVELOPMENTAL" AND "WASTING" DISEASES FROM 1886 TO 1917

(*c*) The statement that infants at birth "start fair" receives no support from the statistics of stillbirths. For several years in England stillbirths from the twenty eighth week of pregnancy have been required to be notified to the medical officer of health It is likely that the law has been complied with to a varying extent in different localities, but this can scarcely explain the fact that while, on an average, stillbirths number 3 to every 100 live births, in some localities the proportion is as high as 7 or 8 Given such variations, it is inconceivable that they can fail to be associated *with corresponding variations in the health of the* mothers and of infants born alive under corresponding conditions.

(*d*) The experience *of illegitimate infants forms* a striking reflection on the opinion that infants start fair at birth. Although the number of illegitimates is small in proportion to the number of births in matrimony, they form a field of social and public health work which, if cultivated, would materially reduce infant mortality This is urgently called for by every humanitarian instinct In the past it has been thought necessary—as likewise in the treatment of venereal diseases—to associate such assistance as is doled out with conditions marking the donors' sense of the moral obliquity of the recipient.

which has rendered help in large measure futile. Among the most sinister of methods of helping unmarried mothers is the one which insists on parting the mother and infant as soon as possible; and yet this has been the method adopted by many agencies in this field, regardless of the elementary fact that the most hopeful action, not only in saving the life and maintaining the health of the infant, but also in lifting the mother out of the morass into which she has fallen, consists in rousing and maintaining maternal love.

(*e*) A most important factor in the causation of neo-natal mortality, and the saddest evidence of all that infants do not start fair, consists in the enormous variations in the incidence of sickness and deaths of mothers during pregnancy and in child-bearing.

This can be seen for England and Wales in the map given opposite p. 12 of my Report (1914–15) on Maternal Mortality in Connexion with Child-bearing (Cd. 8065).

We can divide this mortality into two groups—due to sepsis and due to other conditions—of which renal disease is the most important.

It is doubtful whether any decrease in the death-toll from causes other than puerperal sepsis has occurred. On the other hand, puerperal sepsis has shown a marked decline, and it is impossible to dissociate this from the passing of the Midwives Act, 1902, and the administrative control which has been secured over midwives, who now attend about three-fourths of the total births in England and Wales, subject to the rigid condition that medical assistance must be obtained in the event of abnormality in the case.

It is more than unsatisfactory, however, to find that, notwithstanding the teaching of Semmelweis and of Oliver Wendell Holmes, and the discoveries of Pasteur and their application in Listerism, it is still true in England that for every 700 infants born alive one mother loses her life from puerperal sepsis; that a much larger proportion are invalided from the same cause; and to recall that this mortality and disability occur chiefly as the result of neglect or ignorance in the practice of individual obstetricians, medical or midwives, and from the failure of the community and its representative public health authorities to provide adequate skilled assistance in the one chief event in the national life with which is wrapped up the future and the future welfare of mankind. It is difficult to obtain comparable American statistics, owing to defects in birth registration; but the position in the United States is not less unsatisfactory.

The record for diseases commonly regarded as non-septic is even more unsatisfactory. No improvement can be seen during the present century. Of the total mortality due to pregnancy and parturition the proportion due to different causes is approximately as follows:—

Puerperal sepsis	31·7	per cent.
Puerperal albuminuria and convulsions...	21·6	,,
Puerperal hæmorrhage and other accidents of childbirth	25·5	,,
Other puerperal conditions	10·4	,,
Accidents of pregnancy	10·8	,,

The bare statement of facts gives important indications of the degree to which preventive measures might be adopted.

SURVEY OF POSSIBILITIES OF IMPROVEMENT.

The preceding very imperfect review of some of the causes of neo-natal and maternal casualties should naturally be followed by a survey of possibilities of improvement. As a general hygienist I cannot discuss the special obstetrical, gynæcological, and pediatric problems involved, but as these problems are coming more and more within the scope of public health administration I may be allowed to sketch what is being done by public health authorities, and what it appears to be desirable to do generally, in order to enable every mother and infant to have the best care which modern medicine renders available.

(1) *Need for Continuity of Supervision.*

I would plead that this subject of care of the mother and the newborn infant should not be placed in a compartment separate from general medical care on the one hand or from general public health administration on the other. At every point the general hospital or private physician will be needed; and departments of public health work must be called in aid.

Still less should there be a lack of continuity of observation and care during pregnancy, post-partum, and in infancy, even though different physicians are employed. For medical students one of the greatest desiderata is that they should become practically and continuously acquainted with patients while these are under supervision in pregnancy, during and after parturition, and in the subsequent months when there are two patients instead of one. This evidently can only be secured by having at hospitals in all medical teaching centres, pre-natal clinics, pre-maternity beds for complications of pregnancy, lying-in beds in the hospital, as well as a home clientele, and beds for complications in or after parturition; a post-natal clinic, and a complete system of home visitation of mothers and infants; a clinic for the period between infancy and school life; and a school clinic. And, although perhaps in less elaboration, the above enumeration represents the essential needs of every community.

(2) *Ante- and Post-natal Clinics.*

The best plan for securing a pre-natal clinic is to begin with a post-natal clinic for mothers and infants. Dr. F. S. Kellogg has pointed out that all post-natal care is pre-natal care for the next infant; and that no inconsiderable share of illness of mothers, and of consequent failure in their efforts at child-bearing, is due to neglect of supervision and care after the ten days of the parturient period.

The amount of life- and health-saving attainable by a pre-natal clinic is less than can be secured by improved care in the lying-in period; but probably one-half of the still-births could be prevented, and much of the existing discrepancy in infantile death-rate during the first week after birth could be removed by increased care during pregnancy. Pre-natal clinics have already been largely developed both on their educational and clinical sides; and on the clinical side, in addition to the treatment of minor ailments, the health prospects of both mother and infant can be improved by measurement of the pelvis, ascertainment during advanced pregnancy of the presentation, periodical testing of the urine, and determining whether the mother has become infected by syphilis or gonorrhœa, and by appropriate action in each case.

Although no further mention is made here of the diagnosis and treatment of syphilis during pregnancy, I regard this as one of the greatest gains obtainable from the ante-partum observation of mothers.

(3) *Skilled Care During Parturition.*

Skilled care during parturition is even more important than ante-partum care; and it is at this period that the greatest saving of both maternal and infantile life can be secured. It is, I believe, agreed among obstetricians that more infants of viable age die during labour from injury or accidental complications than die from disease during pregnancy. Dr. Eardley Holland states that of 100 dead-born viable fœtuses he found that generally 40 were macerated and 60 were fresh. In a preliminary statement as to an investigation made for the Local Government Board of England he reports that post-mortem examination in about half of the fresh dead-born fœtuses showed severe cerebral injury in the form of cerebral hæmorrhage and tearing of the septa of the dura mater, owing to excessive stress on the cranium in labour from such causes as delivery by forceps or versions carried out for abnormal presentations.

It has been suggested with doubtful accuracy that the administration of chloroform in parturition has increased puerperal mortality, because of the increasing frequency of operative interference. Protracted delay and consequent moulding of the soft cranial bones in very narrow or otherwise obstructive pelvic passages may, however, do harm as well as hasty delivery by forceps with an undilated cervix.

It should be noted that difficult delivery is an important factor in the production of mental impairment of the child; and in every instance of difficult labour an accurate and early diagnosis of conditions is required in order that the best treatment may be given.

The details of care required in parturition can only be briefly indicated. They include the provision of a trained obstetrician (physician or midwife) for every case, with consultative assistance when required; and adequate nursing help in every case. The strict enforcement of surgical cleanliness in technique should not require to be emphasised; and it is a subject for grave thought that there is still lack in this respect. This lack is not likely to be completely met until the next condition is fulfilled; a condition so important that I give it a separate paragraph.

(4) *Provision of Maternity Homes and Hospitals.*

A greatly increased provision is needed, especially in smaller towns and in country districts, of maternity homes and hospitals where mothers may be confined. These are required, first of all, because the mother must have adequate rest during this trying period of her life. They are required also because many of the homes of the poor are not satisfactory to have confinements in. It is to our shame that this is so, but it is so all the same. Take a simple fact like this: At the last census, in large towns in England—and I do not think the house famine in large towns is less severe here—one out of every seven families lived in one or two rooms, one out of four, or more accurately 27 per cent., lived in dwellings containing one, two, or three rooms. In these small tenement dwellings every function of life has to be carried on; children are born in them and they die in them; and it is evident that, so far as a large proportion of those homes are concerned, unnecessary risks are incurred in connexion with the lying-in period. You may say that this is a strong reason for housing reform. This is so, but the provision of adequate housing will take time. Furthermore, even satisfactory houses without proper help during the lying-in period do not suffice, and, both because of functional and structural defects of the home, it is extremely important for a large proportion of lying-in women that they should have the rest and superior attendance which can be given in a lying-in home, but which are unattainable in their own homes. I know of no social work which is so certain to give immediate results in the saving of maternal and child life, in reducing invalidism of mothers, and in enhancing the national welfare as the immediate provision in every area throughout the country of maternity homes and hospitals for a considerable proportion of normal confinements and for the majority of complicated cases.

(5) *A Raised Standard of Midwifery Practice throughout the Country.*

The average standard of midwifery practice at present is admittedly unsatisfactory. In a recent discussion on "The Teaching of Obstetrics and Gynæcology" at the Royal Society of Medicine, London, Dr. H. R. Andrews said that "the whole system of midwifery training had turned out a certain number of fully qualified medical practitioners who were nothing less than a danger to the State"; and he particularly illustrated "cases in which skilled help was not called in until brute force had done its worst." Although such extreme cases are exceptional, it appears to be generally agreed among experts in England that notwithstanding the overcrowded state of the medical student's curriculum at least three, and some urge six, months should be devoted by each student to maternity and gynæcological work, including work in pre-natal and post-natal clinics. When this is done, and when in every teaching hospital there is an adequate service, including pre-natal clinics, pre-maternity beds, beds for normal and complicated midwifery, beds for post-partum complications, post-natal clinics and infant consultations, the physicians of the future can be adeqately trained to meet the growing public demands for supervision and care in normal and abnormal pregnancy and in parturition, and for post-partum care of the mother and post-natal care of the infant.

Services like the above are needed not only in centres of medical teaching, but in every town, and even in cottage hospitals beds for the same purposes should be supplied. The problem will need to be faced in America whether adequate provision shall be made for medical attendance at every confinement, and practice by unqualified midwives forbidden; or whether, while prohibiting unqualified practice, trained midwives shall be allowed to practise midwifery, as in England, under strict supervision and control. Evidently there can be no prohibition of unqualified midwifery practice unless an alternative provision is available.

(6) *The Need for Further Research in Ante-natal Pathology.*

The existing system of notification or registration of stillbirths opens up a large field of investigation and practical help which has been greatly neglected in the past. Dr. Whitridge Williams found that the death of the fœtus after the seventh month of pregnancy was due to syphilis in 26·4 per cent.[2] of the total cases of stillbirth, and other authorities place this proportion at about 20 per cent. Evidently systematic inquiry followed by action in these cases would result in a great reduction of syphilis, as well as in an increase of live births.

Through the same channel important gaps in our knowledge of the causes of stillbirths and of earlier abortions might be filled. I am aware that a number of important observations in these directions are being made, but there is need for more extensive work in investigation; and there is no field in which such investigation holds out a more promising prospect of success in the saving of life.

Our knowledge on many points in ante-natal pathology is still very defective, notwithstanding the pioneer work by Ballantyne and Routh in England and by many workers in this country. There remain many blanks in our knowledge of maternal syphilis, for instance, as to the degree of importance attaching to a negative Wassermann test in mother or new-born infant; and we have but little knowledge of the toxins of eclampsia apart from renal disease. Our knowledge of the causes of infantile death during parturition, apart from mechanical causes, and of the causes of death in the first week after live birth is still rudimentary. And this, notwithstanding the fact that pathological material is abundant and waiting for investigation. The difficulties of such investigation are great, but it is certain that in the coming years we shall have much light thrown on what is now obscure.

Meanwhile, it would be a calamity if the need for further investigation were to divert attention from the large scope for immediate reduction of mortality, both of mothers and infants, or to delay action; and in promoting this work, we have found in England that there is needed the active coöperation of every private medical practitioner, every midwife, voluntary hospitals, whether general or special, social workers, and public health authorities.

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[2] Omitting cases among the coloured population, the percentage of syphilis was considerably lower

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PROPOSED AMALGAMATION OF THE BRISTOL HOSPITALS.—The Bristol Royal Infirmary, the largest of the hospitals concerned, has decided by an almost unanimous vote at a largely attended governors' meeting to accept the proposed policy of hospital amalgamation. At this meeting the President, Mr. H. H. Wills, and the chairman of committee, Alderman F. Sheppard, recommended the adoption of this course, and explained the steps by which the movement towards amalgamation had progressed since its initiation in 1919. The only modification in the constitution of the "Joint Hospitals Council" proposed by the governors of the Royal Infirmary was an increase in the representation of labour interests. The other hospitals are still considering their attitude towards the proposal, and it is hoped that enough support will be forthcoming to give the scheme an early start.

SCURVY:

WITH SPECIAL REFERENCE TO PROPHYLAXIS IN THE ROYAL NAVY.[1]

BY P. W. BASSETT-SMITH, C.B., C.M.G., F.R.C.P.,
SURGEON-CAPTAIN, R.N.

THE subject of scurvy is of particular interest to all who have to maintain the health and well-being of our sailors.

Past History.

In the days of the old sailing ships, with voyages of extended duration, the danger of scurvy was much greater than it is now; little was known of the ætiology of the disease and catering difficulties were much more marked. Dr. Lind and Sir Gilbert Blane, the pioneers of naval hygiene, were both very active in studying and in endeavouring to eradicate this scourge of the navy. Fresh fruit and vegetables, as prophylactic and curative agents for scurvy, had been known to the Dutch as far back as 1564, and these had been successfully employed in the fleet by Sir Robert Hawkins in 1600, but the use of orange and lemon juice had been more or less forgotten until Dr. Lind insisted on their value. He, however, recommended *preserved* juice for use on long voyages. The fresh fruit juice was concentrated by heat to a thick syrup; as this was done in glazed earthenware vessels soluble lead salts were formed, and Lind drew attention to this danger, which he referred to as "death in the pot." Trotter strongly opposed the use of this form of preserved juice, as it was said to undergo fermentation and become mouldy. Unfortunately its issue to the crews in Cook's famous voyage of 1773–1774 did not prevent scurvy breaking out.

It was Gilbert Blane's teaching and powerful influence which brought Lind's recommendation into official use. Sir Gilbert Blane in 1757 pointed out the importance of cleanliness, sufficient ventilation, and absence of damp in ships, and the need of a supply of lemon juice for the prevention of scurvy. It was, however, not until 1796, when he was one of the Commissioners of the Navy Board, that the use of lemon juice was ordered as an essential part of the naval dietary, and this quickly resulted in the practical disappearance of scurvy from the Service afloat. In 1782 two-thirds of an ounce of lemon juice per man per diem protected the whole ship's company of H.M.S. *Suffolk* during a voyage of 23 weeks without touching port. In a discussion on the probable causes of the disease, which he attributed to the lack of a "certain element which is necessary for growth and repair," Blane foreshadowed the present deficiency theory.

From that time to the present lime juice has been a standing ration, but its efficacy has disappeared.

The reason for this has been ably shown by Mrs. Alice Henderson Smith. As originally prepared the lime juice was made from sweet limes, *Citrus medica*, with lemons, imported chiefly from Spain. In 1793 war stopped these supplies, but in 1802 delivery was resumed, and scurvy, which had obtained a temporary hold, was again almost eliminated. About 1860, by the development of the cultivation of limes in the West Indies, a large quantity was made available, and the contracts entered for the navy caused these, the sour lime, *Citrus medica var acida*, to supersede the sweet limes and lemons formerly in use, and for a time the new lime juice was believed to be better than the old. In Ross's polar expedition the original lemon juice had been issued, but Sir George Nares, in 1875, was provided with the new West Indian lime juice. The general conditions of the two expeditions were very similar, but while the former escaped scurvy, Sir George Nares's men suffered severely from it, in spite of the regular issue of the lime juice, thus demonstrating the failure of the new preparation as a prophylactic. The sister ship in the latter expedition, the *Investigator*, was supplied with lemon juice, and for 27 months after leaving home she had few cases, though the crew suffered great hardships. In three and a half years she had only three deaths from scurvy, whereas Nares had the same number in one year.

The evidence is clear that lemon juice is far more effective than lime juice in preventing scurvy, and this has been fully confirmed by the large number of laboratory experiments carried out at the Lister Institute, London, and elsewhere, which have determined exactly their relative values for the purpose. Lemon juice and sweet limes have therefore been found to repair a deficiency which, if not rectified, induces scurvy, and the consumption of these juices is curative for the same disease. This is in accordance with modern teaching, which attributes the condition to a deficiency of a certain accessory factor known as scurvy vitamine. This factor is found in living vegetable (and secondarily in animal) tissue; in largest amount in fresh fruit, green vegetables, and growing pulses, and, to a less extent, in roots and tubers. Young vegetables contain more than old. It is present in small amount in fresh meat and milk. It has not been found in yeast, fats, dry cereals, and pulses, but exists to a certain extent in canned tomatoes. The antiscurvy food factor is sensitive to high temperatures, and if exposed to them it rapidly loses its efficacy; the presence of alkali is also detrimental.

Recent History.

Much has been written of the prevalence of scurvy during and since the war among the combatant forces and in the civil populations chiefly affected in war areas. Of the former, those in Mesopotamia suffered very severely, and Colonel W. H. Willcox, in his excellent communications, has described the reasons for the outbreak very fully.

The high incidence amongst the native troops at Kut, in comparison with that of the Europeans, is explained on dietary grounds; the latter had fresh meat to supplement their meagre diet, and the former were more susceptible owing to diminished vitality from preventable causes. He states that the knowledge we then possessed for the prevention of scurvy and beri-beri was not fully appreciated and acted upon by those in authority—i.e., that the food must have the necessary accessory factors, as well as sufficient calories as estimated by the protein, carbohydrates, and fat. The fact that over 11,000 cases of scurvy occurred in the last six months of 1916 indicates the importance of the subject. The following table shows the amount of scurvy in the Indian troops and beri-beri in the British.

Year.	Scurvy (Indian).	Beri-beri (British).
1916	11,445	104
1917	2,197	84
1918	825	51

The crews of British men-of-war were also affected to a small extent, and as has been shown repeatedly by the endemic presence in the Persian Gulf of ship beri-beri, this is a question of some importance, more particularly in times of extra strain, as was the case in these years. Much has been done to prevent these outbreaks by increasing and supplementing the diet, but climatic conditions in that area always make the provision of efficient food-supplies difficult.

In other war areas, Serbia and the remainder of the Balkans, famine conditions have necessarily given rise to an enormous number of scurvy cases. In Northern Russia it is very prevalent each winter, particularly in the prisons. Even on the Western Front the cases of incipient scurvy were very numerous, due in great part to the use of tinned provisions. By Japanese investigators the conditions produced in guinea-pigs on a deficiency diet is considered to be similar to that found in ship beri-beri, a disease which undoubtedly links up human scurvy and beri.

The post-war hardships in the civil populations have also induced scurvy, and the gallant fight being made against this and other diseases by individuals of all classes and peoples throws a glimmer of sunshine on what is otherwise a dark and tempestuous horizon. The work in Vienna of Dr. Harriette Chick and others to ameliorate the sufferings of the infantile population is particularly noteworthy. From a scientific point of view such an overwhelming mass of cases has increased our knowledge of the clinical features of scurvy enormously, and many new facts have been ascertained.

Relationship of Scurvy to other Deficiency Diseases.

The ætiology, thanks to the work of British, American, French, and other observers, has now been placed on a sure foundation, following the elaborate investigations that have for years been carried out in establishing the ætiology of beri-beri as a deficiency disease. The close relationship of beri-beri, ship beri-beri, scurvy, and rickets was well shown in a diagram (Fig. 1) by Darling in 1915, which I here reproduce; it shows the gradation from polyneuritis avium at one end to that of rickets at the other. (Table I.)

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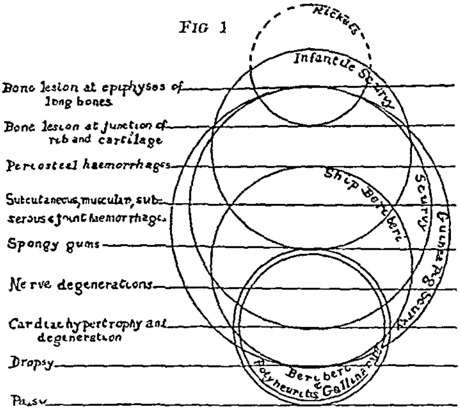
[1] A paper read before the War Section of the Royal Society of Medicine on May 10th, 1920.

He recognised several varieties of beri beri—infantile beri beri, asylum beri beri, wet and dry beri beri (which Vedder and Clark look upon as distinct), the Brazilian type, endemic dropsy, and endemic peripheral neuritis Darling, with Surgeon General Gorgas, spent much time in investigating the endemic scurvy found among the native miners on the Rand in South Africa The cardiac condition resembled beri beri in the concentric hypertrophy of the right heart and degeneration of the vagus nerves The disease *appeared to depend upon the* following factors over milled corn as a chief article of diet, over cooked corn, over boiled meat, insufficient vegetables

Clinically, cases were seen of every degree of severity, from those who had spongy gums only to those with excessive hæmorrhages Some cases showed marked rickety symptoms, with extreme destruction of the chondro costal junctions, others were similar to beri beri with cardiac degeneration and changes in the vagus nerves Personal and racial factors had an unknown influence on the resultant symptoms A deficiency diet in a tropical African negro miner caused severe scurvy symptoms, and in a Cape Colony African labourer mild scurvy, a diet that in some African negroes caused scurvy, in others produced neuritis In all cases the knee-jerks were exaggerated (Those who have experience in ship beri beri have often been puzzled by the persistence of knee jerks in these cases also) The scurvy on the Rand, besides showing cardiac changes, differs from the ordinary forms found in time of poverty and famine in that it does not so readily yield to treatment

FIG 1



Rickets
Infantile Scurvy
Ship Beri beri
Scurvy
Guinea Pig Scurvy
Beri beri
Polyneuritis Gallinarum
Bone lesion at epiphyses of long bones
Bone lesion at junction of rib and cartilage
Periosteal haemorrhages
Subcutaneous, muscular, subserous & joint haemorrhage
Spongy gums
Nerve degenerations
Cardiac hypertrophy and degeneration
Dropsy
Palsy

Chart showing gradation from polyneuritis avium to rickets (Darling)

TABLE I.—*Showing Affinities and Pathologic Features of Scurvy, Beri beri, &c.* †

—	Rickets	Infantile scurvy	Scurvy	Guinea pig scurvy	Ship beri beri	Beri beri	Polyneuritis gallinarum
Bone lesions at epiphyses of long bones	+	+	*	+			
Bone lesion at junction of ribs and cartilage	+	+	+	+			
Subperiosteal hæmorrhages		+	+	+			
Joint, subserous, subcutaneous and muscle hæmorrhages		+	+	+	+		
Spongy gums		+	+	+	+		
Nerve degeneration			+	+	+	+	+
Cardiac hypertrophy and degeneration			+	+	+	+	+
Dropsy				+	+	+	+
Palsy						+	+

† Trop Dis Bull vol v, 1915 * Depending on age of patient

Darling sums up in the following words "The striking excentric hypertrophy and dilatation of the right heart, with extensive fatty degeneration of the muscle, and the severe degeneration of the vagus nerves, in cases of scurvy seen on the Rand, furnish new and additional facts which show the intimate relationship between scurvy and beri beri as to etiology The affinities between these two diseases and certain other cachexias lend emphasis to the opinion that they are all the result of the continued use of a one sided and deficient diet "

An Efficient, Portable, and Palatable Antiscorbutic

Recognising the antiscorbutic that cannot be supplied by the preserved lime juice from West Indian sources as at present made, it has been my object to provide an efficient, portable, and palatable substitute for the use of ships as occasion requires, and for such expeditions as may be undertaken in polar exploration, &c. For the last six months I have been experimenting at the R N. College, Greenwich, with guinea pigs, which are extremely susceptible to scurvy, to obtain such an antiscorbutic preparation to replace or add to the lime juice ration The value of these experiments with guinea pigs in relation to human scurvy has received abundant proof by experiments on monkeys carried out by Barnes and Hume, Chick, Hume and Skelton, and others

Much of the work done at Greenwich has not been original, but was nevertheless necessary before passing on to the methods of prevention and cure. The use of dried orange juice has been largely employed by Givens and McClugage, who found that in the fresh state it was equal to that of lemons, and that it retained its antiscurvy properties for a considerable time, but in their preparation the employment of a certain amount of heat diminishes the efficiency of the product In the investigation carried out at Greenwich various methods of preparing the juice were tried, evaporation at 60° C , de acidification, impregnation of filter paper, rapid drying, &c

Method of Preparation

The final laboratory method evolved, which has been continuously in use, is as follows —

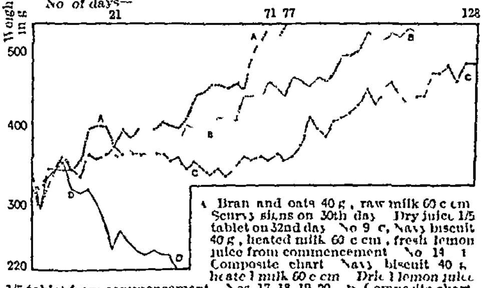
The juice of fresh lemons is roughly filtered through muslin and then through filter paper under reduced pressure by means of a water pump The filtered juice is evaporated, in vacuo over sulphuric acid at ordinary temperature (13 5°-15 5° C) The residue of non crystallisable syrup is worked up into as stiff a paste as possible with a mixture of anhydrous lactose 97 per cent , gum tragacanth 3 per cent The paste is cut up into sections, each containing the juice of half a lemon These are rolled, faced with the mixture, and pressed to assume the *lozenge form* These tablets have been stored at 15°, 30°, and 37° C for months, and have been employed in the experiments The average yield of juice from one lemon is about 48 c cm , and each tablet contains the equivalent of 24 c cm of unfiltered juice The whole process takes about five days , no heat whatever is used

Experimental Results

Two series of experiments were carried out (Fig 2)

1 Using a basal diet of bran and oats, 60 c cm of milk heated in steam steriliser for 1½ hours, and water ad lib In this there was abundant water soluble anti beri beri, and fat soluble growth factor The control animals died between the thirtieth and fortieth day with all the usual signs of guinea pig scurvy and great loss of weight The addition of navy lime juice did not give any protection

FIG 2

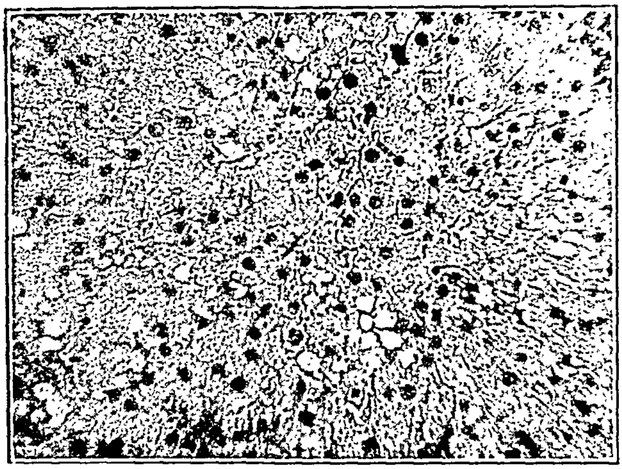


A Bran and oats 40 g , raw milk 60 c cm Scurvy signs on 30th day Dry juice 1/5 tablet on 32nd day No 9 c, Navy biscuit 40 g , heated milk 60 c cm , fresh lemon juice from commencement No 14 B Composite chart Navy biscuit 40 g heated milk 60 c cm Dried lemon juice 1/5 tablet from commencement Nos 17 18 19 20 D, Composite chart Bran and oats heated milk, 60 c cm Nos 1 2 4 7, 8

2. In the second series navy biscuit was used as the basal diet to which was added steamed milk 60 c.cm. and lime water; on one day per week the biscuit was substituted by oats to supply the anti-beri-beri vitamine. Growth was well maintained for over a fortnight, then the weight rapidly decreased, scurvy signs were manifested, and death followed. Control animals with 20 g. of fresh cabbage or 10 c.cm. fresh de-acidified lime juice grew normally. Animals were given 1/5 tablet (= 4·8 c.cm. fresh lemon juice), in solid form, by hand feeding. There was generally a loss of weight at first, but when they became accustomed to the diet the animals grew and remained healthy for over three months.

A further series was carried out to find the minimum amount of tablet which would act as a preventive dose. The daily amount was reduced to 1/10th (= 2·4 c.cm. fresh lemon juice). In two animals this was sufficient, but in two others signs of paralysis appeared, and they had to be placed on normal diet again; this was followed by recovery.

FIG 3.



Suprarenal gland in scurvy showing fatty degeneration. × 120.

Keeping properties.—Animals were also given tablets which had been stored for three months and more, and no loss of protective power was noticed. Tablets kept at 37° C. became dark in colour and softer, due to caramelisation of the lactose, and this appears to effect to a slight extent the vitamine properties. In no instance were the tablets found to have become mouldy, whether kept at room temperature or blood heat.

TABLE II.—*Comparative Results.*

(A) Original weight. (B) Weight at death. (C) Weight (mgm.). (D) *Mgm. per 100 g. of body-weight at death.*

—	Scurvy animals.	Animal.		Suprarenals.	
		(A)	(B)	(C)	(D)
No. 1.	Died on 48th day. Hæmorrhages and joint signs. Suprarenals—*local and diffused hæmorrhages.*	340	235	270 225	115 96
No. 2.	Died on 44th day. Hæmorrhages and joint signs. Suprarenals: *Hæmorrhages and degeneration of cells in cortex.*	360	235	237 200	101 85
No. 3.	Died on 53rd day. Mucous and muscular hæmorrhages. Suprarenals, diffuse hæmorrhages, and slight fatty changes.	340	270	255 225	94 83
No. 4.	Died on 44th day. Joint signs. Suprarenals, intense hæmorrhagic condition whole gland. Fatty changes in cortex.	320	240	185 175	77 73
No. 5.	Killed 27th day. Hæmorrhages and joint signs. Ophthalmia. Suprarenals—extreme fatty degeneration of cortical cells, slight hæmorrhages.	370	260	220 182	85 70

Five Scurvy Animals—Suprarenal Bodies.

Average weight per 100 g. body-weight at time of death ... 87·9 mgm.

Six Normal Animals—Suprarenal Bodies.

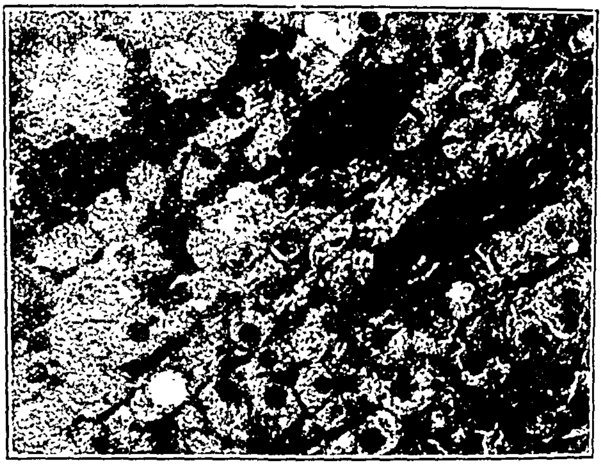
Average weight per 100 g. body-weight at time of death ... 25·8 mgm.

Therapeutic action.—If administered to an animal following scurvy signs, which were not too marked, a cure was effected, but if diarrhœa had set in, or a great loss of weight had occurred, the animals died.

As they have been so fully reported elsewhere, it is unnecessary to describe the scurvy symptoms in the animals or the post-mortem findings, but the condition of the suprarenal bodies, as emphasised by McCarrison, deserves further mention.

He has shown that in guinea-pigs these organs are enlarged, hæmorrhagic, and have a reduced adrenalin content, and with this there is a tendency to secondary bacterial blood infections (found once in my cases). In my experiments the changes in the suprarenals of the scorbutic animals were very marked. (Fig. 3 and 4.) There was marked congestion of the whole gland, with diffused or circumscribed hæmorrhages and fatty degeneration of the cells chiefly affecting the cortical areas. The weight of the glands was roughly three times that found in healthy guinea-pigs. The reduction of the normal secretion is, according to McCarrison, an early factor in the scurvy syndrome, and influences very markedly the metabolic changes in the animal, and he concluded that the evidence, so far available, points to the dependence of the functional perfection of the adrenal glands upon the adequate supply, in the food, of the accessory food factors of the various classes.

FIG. 4.



Another section showing circumscribed hæmorrhages in the cortical area. × 350.

Conclusions.

Many observations have shown that the onset of scurvy is very gradual. Dr. J. R. Comrie, in an account of scurvy in Russian prisons, stated that it might be 4½ months, but generally it is as long as 6 months, before symptoms are manifested. In the pre-scurvy stage, owing to the deprivation of antiscurvy factors, the metabolism of food is incomplete and a positive agent is added, which acts like a toxin, causing changes in the adrenals and their secretions, favouring the hæmorrhagic conditions which are such marked features of the declared disease.

The use of this concentrated preparation has shown that it has effective antiscurvy properties for animals. We may therefore, with confidence, apply its use to man under conditions of service which preclude the regular provision of fresh fruit and other known preventive substances. It could also be employed in the mercantile marine. Though it is not yet possible to say how long the activity of the retained antiscurvy vitamine will remain effective, it is probable that this will be of extended duration if the preparation is kept dry and cool. Dr. Chick, in Vienna, has found that 5 c.cm. of lemon juice is a prophylactic dose for infants, therefore 24 c.cm. would probably be ample for an adult (half a lemon). The tablets dissolve fairly readily if added to water containing a small quantity of bicarbonate of soda, and it is suggested that these dissolved tablets, containing antiscurvy accessory factor, should be added to the ordinary non-active pleasant-tasting lime juice at present issued.

For general service, when large quantities are required, the non-heated concentrated syrup, as obtained before being mixed with lactose, might be kept in bottles and the equivalent of 24 c.cm. of fresh lemon juice be given per man, after solution in water to which sugar has been added at the time of issue. It is probable that this syrup would keep without mould formation and this aspect is at present under consideration.

In this investigation I am greatly indebted to Mr. R. C. Frederick for his able assistance in preparing the tablets used, and to Sick-berth Steward A. Coules for his careful attention in feeding the animals.

A SHORT ACCOUNT OF AN OUTBREAK OF SMALL-POX IN OCCUPIED GERMANY.

BY G. G. JOHNSTONE, M.A., M.D., D.P.H. CAMB.,
CAPTAIN, R.A.M.C.(T.F.).

DURING the month of December, 1918, it will be recalled that the British Army of Occupation was moving through the Ardennes and the bleak and mountainous Eifel district on the way to take up its position along the Rhine. The Germans had, on the whole, been very successful in their rapid retreat, and beyond broken-down motor lorries and cars, and the frequent spectacle of a zone or border of discarded shrapnel helmets along each side of the roads at a distance of about 15 yards, there were few signs to show that the war had so recently ended. Inside some of the hospitals, however, there certainly were signs of blockage and overloading, and in the rush backwards in the case of the retreating army, and forwards in the case of the liberated prisoners of war, the German medical work must have been sorely taxed.

It happened, then, that in the Hospital of St. Vith—a little market town in the province (late German and now Belgian) of Malmedy—there was a case of small-pox in a Polish soldier, who had recently been demobilised from the German army. In the rush and pressure of the constant movement the diagnosis was not made until the infection had spread to other patients in the hospital. The Polish soldier himself was sent on an ambulance train across the Rhine undiagnosed. On the arrival of the first British troops at St. Vith the senior civilian local doctor reported that there was small-pox in the town. There were three cases in the local hospital and one in a house in the centre of the town. This latter case was being removed at once to the hospital. A car was immediately sent to Cologne—about 70 miles away across the mountains—to procure a supply of fresh lymph for use amongst the civilian population. The town was put out of bounds as a billeting area, and the column of troops—a brigade of cavalry and three whole infantry divisions—marched right through the town.

On investigation at the hospital it was found that the Polish soldier had been nursed in the same ward as a man who was suffering from pulmonary tuberculosis. The latter was frequently visited by a cousin—a midwife in practice in the town. The midwife was taken ill with small-pox in her own home on 30/11/18, a day or two after she had attended two confinements. On 15/12/18 her husband was removed to the hospital also suffering from small-pox. On each occasion after the removal of a case to the hospital the house was disinfected by the local authorities. The aged mother of the midwife (81 years) was removed to hospital at the same time as her daughter for the purpose of isolation. On 4/1/19 she was allowed to return to her home, which had been disinfected three weeks before, and on 18/1/19 she also contracted small-pox and was removed to the hospital, where she died. These were the only three cases occurring in the town of St. Vith, and all of them came from the same house.

Hospital Conditions.

A brief sketch of the local hospital will help to explain the cause of the incidence of other cases in this epidemic. On the outskirts of the town there was a building, or rather a composite group of buildings all within the same grounds. In these buildings were housed (1) the local hospital for general diseases; (2) a chapel; (3) an almshouse for aged people; (4) a small convent, the inmates of which were the nurses in the hospital; (5) a large orphanage and school of domestic economy. Here, then, we have a very suitable medium for the growth of a small-pox epidemic, and it seems almost surprising that the number of cases was not greater than actually did occur.

It has been already noted that a supply of lymph had been sent for from Cologne, and on 6/12/18 the inhabitants of the hospital and other buildings, and, as far as possible, of the town, were vaccinated by an organisation of the two local doctors and the Kreisarzt, or medical officer of health for the Kreis of Malmedy. In spite of vaccination, three nurses and one attendant were taken ill on 21/12/18. Two of the nurses, including the matron, died. Altogether five of the nursing staff of a total number of about 20 took the disease, and, in spite of vaccination both recent and remote, the type of the illness was grave. There was no proper isolation block in the hospital, and there was no small-pox hospital, or even proper infectious disease hospital for the district, so that the cases were isolated in a part of the building which was occupied by the aged pensioners, and below them by the nursing sisters.

It was not altogether surprising, then, that the incidence of cases amongst these aged people was very high. Eight (about two-thirds) of them were taken ill, and fortunately there was only one death. Their ages were respectively 40, 63, 75, 70, 72, 81, 52, and 70. At the time of the vaccination the authorities were rather of opinion that it was not essential to insist upon the vaccination of these aged folk, and thus five out of the eight had not been vaccinated since their childhood. Two of them were ill with bronchitis or influenza at the time, and it happened that the only fatal case was that of a woman who refused to be vaccinated in spite of advice.

In the same ward as that in which lay the original Polish soldier it has been mentioned that there was another patient—also a demobilised soldier of the German army. He took the disease, and before the diagnosis had been made he was frequently visited by: (1) his cousin, the midwife, already referred to; and (2) his father (aged 60), who lived in a village about 4½ miles away across the hills. This man was taken ill on 17/12/18 in his house, and as soon as the case had been diagnosed the whole of the population was vaccinated and the village was put out of bounds to British troops. The patient was removed to the St. Vith Hospital on 26/12/18. On 30/12/18 the mother and three children were all taken ill with the disease in a mild form in the hospital where they had been removed for isolation. They were vaccinated on 22/12/18. Fortunately, no other cases occurred in this village.

Vaccination Orders.

It was considered wise, however, by the British authorities that vaccination should be undertaken more extensively in the neighbouring villages. Many points had to be taken into consideration. St. Vith was the market town for that part of the country. Farmers, and others, were constantly coming in and going back to their isolated villages amongst the hills. No check had been made in the early days of visitors to the hospital. Owing to scarcity of civilian doctors and the long distances to be travelled, the poorer people did not seek medical advice unless an illness was of a severe or painful nature. Cases, then, of slight small-pox might lie ill in these villages for days and even weeks without isolation or any other precautions. Although the great majority of these villages were not in use at the moment as billeting areas for British troops, it was not known when the occasion for such use might suddenly arise. St. Vith was also a railway centre of some temporary importance, for it was here that many of the railway wagons and engines were collected from all parts of Germany and repaired previous to being sent over the border to France and Belgium under the terms of the armistice.

An order was then issued by the British military authorities that there should be a compulsory vaccination by the local German doctors of the inhabitants of the villages within seven miles of St. Vith. Lymph sufficient for 10,000 cases was supplied from Cologne to the Kreisarzt for the purpose of this vaccination, which took place during the middle of January.

Three Interesting Cases.

Three more cases remain to be noted, and they are all interesting in that they bring to light the weakness or inefficiency of the strict administration of the hospital as a small-pox isolation hospital.

The first case occurred in a remote village six miles from St. Vith. The husband of the patient had been in hospital and was discharged on 24/12/18. He took out with him some undisinfected clothing in a parcel. The parcel was not opened until 5/1/19. The woman was taken ill just about a fortnight later. She, with the rest of her family, had been vaccinated on 15/1/19, so that she was taken ill within five days of her vaccination. Owing to poverty and inaccessibility of the village a doctor was not called in until 10/2/19—that is, during the fourth week of the disease.

After the occurrence of this case orders were issued to the hospital and German medical officers that a complete list should be furnished of all patients who had left the hospital since the date of the first case, and that a weekly medical inspection of them should take place.

The next case brings out the above points even more clearly, for the patient—a man of 36—had been in the hospital suffering from morbus cordis, and had been nursed in an infected ward. He was discharged on 5/1/19 and he was taken ill about 10/1/19. No doctor was called in owing to poverty, and it was not until five weeks later—on 18/2/19—that the burgomaster of the village telephoned to another hospital and asked if the case could be admitted. The local doctor on his examination of the case noticed the marks of small-pox, and then, in consultation with a German doctor who had arrived from the interior of Germany to take charge of the epidemic, the history was elicited and the diagnosis made. The sister superior of the hospital had suspected that the patient was suffering from tuberculosis, and had fortunately put him in an isolation ward.

The village in which this case had occurred was again on the extreme northern periphery of the vaccination zone, so that a further zone was marked out, and the inhabitants of 11 more villages were all vaccinated. Fortunately this was the last case in this area.

The final case is just deserving of note. It occurred in Cologne itself. The patient had come from Cologne to St. Vith in search of work. He was given work in the hospital grounds and did odd jobs about the premises. After ten days or so he got tired of this and went back to Cologne without the knowledge of anybody. He was taken ill a few days later, but fortunately there were no contact cases.

When the casual nature of the administration of the hospital began to be more fully recognised a further order was issued by the British military authorities. This order forbade any civilian to leave the area of St. Vith without a certificate signed by a local German doctor, stating that the subject: (1) had been recently vaccinated; (2) was free from disease; (3) had not been in contact with a case of small-pox.

The above, then, is a short sketch of the epidemic. In all there were 30 cases, 4 of which died, and 3 of these 4 belonged to the nursing staff of the hospital.

Administrative Difficulties.

A few words may be added on the subject of administration, especially as the circumstances are rather exceptional. It should first be pointed out that in Prussia since 1874 the law has insisted on the vaccination of all children on two occasions: (1) during the first year of life, and (2) at puberty. Thus practically all the patients had been vaccinated at least twice, and some of them three and even four times. There was no real isolation hospital of any kind for this part of Germany. The Kreisarzt had urged the provision of one, but it was not until the British military authorities strengthened his hand by giving a direct order to the civilian authorities that any means for the isolation of small-pox cases and suspects were adequately provided. This took the form of temporary isolation huts in a field.

During the earlier days of the British occupation the civilian medical authorities undoubtedly were handicapped in their ability to take rapid and effective measures to cope with an epidemic. They were not allowed to use the telephone or telegraph. They were not allowed to use motor-cars. Their train service had come to a standstill. There was no petrol, and the great majority of cars were standing idle because there were no tyres. Circulation of civilians was greatly restricted. They were not allowed to use bicycles or to go out after dark. It was only a matter of a few days, however, before these orders were to a large extent rescinded in so far as they affected medical matters. Furthermore, the British authorities helped the local civilian authorities by the supply of disinfectants, petrol, and oil, and to a certain extent with transport to enable the epidemic to be more efficiently handled.

The population of the Kreis or Circle of Malmedy was between 30 and 40 thousand inhabitants, the majority of whom lived in small and straggling villages and hamlets scattered amongst the bleak hills of the Eifel district. For a part of the time the roads were covered with six inches of snow. This had the dual effect of isolating one village from another, and at the same time of preventing the efficient medical visitation and supervision of cases who were taken ill in the villages.

Here it may be mentioned that in these outlying villages there were cases of typhoid fever constantly being brought to medical notice far on in the course of the malady. They were just nursed at home by relatives, and their removal to hospital for better nursing and isolation was greatly resented in many cases. There was, apparently, no provision of any ambulance, motor or otherwise, for the removal of infectious or acute cases from their homes to the hospital, and, incidentally, it may be observed that one of the cases of small-pox—a man of 60 suffering from a grave confluent type of the disease—had to be removed in an open farm wagon a distance of 4½ miles across the hills by bad roads covered with six inches of snow. He fortunately recovered.

In conclusion, it is a pleasure to record the spirit of harmony which existed between the British military and the German civilian medical authorities with regard to steps which were taken to cope with the epidemic, and it is satisfactory to report that three British divisions and a cavalry brigade marched across this area during December without contracting a single case of the disease.

A REVIEW OF RECENT WORK ON THE
MORBID ANATOMY OF CHRONIC ARTHRITIS.[1]

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THE pendulum is swinging back to the pre-Charcot days, when all forms of chronic arthritis were grouped under the one heading, and the differentiations brought forward by Charcot, Goldthwaite, and others must be considered as unsound from a pathological, ætiological, and even a clinical aspect.

As far back as 1906 this tendency can be seen in a paper published by Nathan, of New York; it is much emphasised by Daniel in his book on "Arthritis," published in 1912, and in a paper which I read before the Harrogate Medical Society in 1911 I urged the view that degenerative or osteo-arthritic changes followed in cases of long-standing rheumatoid arthritis. It is, however, the recent work of Nathan, published in the *American Journal of Medical Research* for 1917, which appears to me to remove all doubt on this perplexing subject.

Clinically there are two types of chronic arthritis, those which lead to ankylosis, both fibrous and osseous, and those which lead to ankylosis by deformity or locking. Pathologically there are also two types of chronic arthritis, the inflammations and the degenerations; but between these clinical and pathological types there are all gradations, and frequently both types are combined.

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[1] A paper read at a discussion on Chronic Arthritis before the Harrogate Medical Society.

All these types may be produced by the same ætiological factor, the variations largely depending on the duration and intensity of the damaging agent, or as Nathan puts it —

> "The various anatomical and particularly the histological abnormalities, although characteristic in themselves, cannot be brought into correspondence with specific ætiological factors, clinical entities, or even definite pathological entities As there may be purely atrophic and purely proliferative conditions or combinations of the two in the joints of the same individual, and though there may be only synovial changes in some and only osseous changes in others, combinations of such changes are often to be found side by side in the different joints of the same individual"

Even in the cases of known ætiology the search for a specific reaction in the joint tissues in correspondence with specific morbid factors has been in vain.

Take, for example, tuberculosis We may have a distinctly synovial type with the formation of granulation pannus with secondary invasion of cartilage and bone, or we may have a primary osseous focus which invades the cartilage and joint cavity from the epiphysis The epiphyseal disease may present purely degenerative or purely inflammatory changes, or a combination of the two may be found on examination The changes may be accompanied by a proliferation in the joint interior resulting in fibrous or osseous ankylosis, or a focus may remain in the epiphysis causing atrophy of the neighbouring bone structures, which subsequently leads to deformation without involving the articular cartilage

Or, again, the statement by Daniel that "it may, on the other hand, well be that rheumatoid arthritis is the analogue of primary synovial tuberculosis, while osteoarthritis conforms more to the osseous infection, which *distinction does not make either a special entity but simply a clinical variety*"

Nathan has now been able to show by experiments on dogs that analogous phenomena occur in gonococcal, pneumococcal, streptococcal, and other infections The differences are simply in the extent and in the rapidity of the process, and not in the fundamental changes in the joint tissues

The Difficulties of Classification

It is impossible to discuss the many different classifications which have been made, but I shall give you one as an example to show how impossible it is to do so with any degree of accuracy

Goldthwaite divided the chronic joint conditions into atrophic, hypertrophic, and infectious, but this grouping, though convenient, is misleading and unscientific, as has been demonstrated by the admirable work of Nicholls and Richardson, who show that in the so-called atrophic type that the early predominating lesion is a proliferating process, while in the so called hypertrophic or degenerative type the early lesion is an inflammatory one It therefore becomes impossible to divide these joint diseases according to their pathological findings

There are no joint diseases which are exclusively degenerative or exclusively proliferative, the one or other may predominate in a particular joint, and there are evidences of both these conditions in practically all joint diseases All the phenomena of inflammation may be present, be followed by partial or complete resolution or by degenerative changes, again, when the inflammatory condition has long subsided, there may be simply degenerative changes with nothing to show that they were preceded by a more or less intense inflammatory condition The variations are due to the variations in the location, the intensity, the duration, the termination of the process, and the stage at which the affected structures are examined

To enable us to follow the various pathological manifestations intelligently it will be convenient to describe the morbid changes as they occur, first in the inflammatory and then in the degenerative stage, recollecting that they are differentiated for convenience, but that both processes take place to a certain degree in every joint affected with chronic arthritis

The Microscopic Structure of a Normal Joint

'In a normal joint a thin layer of cartilage covering the articulating surfaces of the bones is itself covered by a thin layer of specialised connective tissue, the perichondrium This layer is somewhat thickened at the periphery of *the joint, and becomes continuous with the connective* tissue of the *synovial membrane* Underneath the perichondrial layer the cartilage is hyaline and the cells are smaller and fewer in number than towards the epiphysis, where they occur in irregular groups, arranged at right angles to the joint surface, and are definitely encapsuled Between these vertical layers of cells are parallel bands of somewhat fibrous hyaline cartilage Beneath this layer comes a zone of provisional calcification (Nicholls and Richardson) which represents the line of transition from cartilage to bone, and may consist of a homogeneous, granular, or laminated matrix The cells are either cartilage cells sometimes surrounded by granular matrix, or true bone corpuscles surrounded by laminated lime bearing matrix Beneath this zone there is usually a continuous layer of bony tissue The marrow spaces just beneath the articular cartilage usually are vascular and lined at intervals by flattened endosteal cells, greatly enlarged, resembling the osteoblasts, occasionally bone giant cells, osteoclasts, are seen lying in little cut-out bays in the trabeculæ, which show lamination from the deposit of layers of calcified bone"

The dense fibrous joint capsule is lined with the mesenchymal cells of the synovial membrane, which commonly extends along the adjacent tendon sheaths At its junction with the periphery of the cartilage gradual *transition in type from fibrous into cartilaginous tissue can* be seen Thus we see that at the periphery of a joint the capsule, synovial membrane, perichondrium, and zone of provisional calcification become practically merged

When one remembers the embryonic origin of the joint structures the interpretation of many of the phenomena of joint diseases becomes much more easily understood The cells in the capsule, cartilage, periosteum, and area of transition between capsule, cartilage, and periosteum will, under morbid conditions or influences, proliferate and produce bone or cartilage in regions where these tissues are normally found *Under some circumstances, apparently, the cells proliferate as embryonic cells, and finally produce bone or cartilage in situations where these tissues are normally absent*

The Inflammatory Stage.

The focus of invasion commences as a subperiosteal inflammation in the region near the capsular insertion In a very short time this localised inflammation leads to localised periostitis In the milder cases the condition subsides at this stage, and the clinical phenomena of capsular irritation, joint effusion, and peri and para articular œdema disappear, and there remains a localised periosteal thickening or node as the only permanent change These are familiar to us all as Heberden's nodes When the disease is not arrested and advances from the periosteum to the capsule the inflammation gradually invades the joint cavity Hyperæmia is succeeded by the usual phenomena of inflammation, round celled infiltration, granulation, and connective tissue formation, leading to marked thickening of the capsule The most marked changes usually take place in the synovial membrane The proliferation of the synovial membrane produces a layer of granulation tissue, which, sooner or later, may extend over the cartilage as a thin pannus like layer

Nathan has experimentally on dogs produced a similar pannus by immobilising joints in plaster of Paris for periods of six weeks or so

If the source of irritation is removed the condition may stop there, but usually when the pannus comes in contact with the cartilage it produces a destruction and absorption of the cartilage by sending loops of blood vessels into it much in the same way as a catgut ligature is absorbed A proliferation of the perichondrium may, moreover, lead to the formation of a layer of specialised connective tissue, which readily transforms itself into cartilage and sometimes into bone When this process takes place in both articular cartilages the whole joint cavity may get filled up, adhesions take place between the two joint surfaces and the cartilages get absorbed and destroyed This proliferation is never regular, portions of cartilage are always left as small islands among the granulation tissue Nathan considers the above phenomena to be mainly synovial and refers to it as the synovial type

The osseous type —In addition to the changes already described within the joint cavity similar changes may take place (either independently or in conjunction with those already described) within the marrow of the epiphysis of the bone itself Lindsay Milne, writing in the *Journal of Pathology* for October, 1911, considers that this is the most common type, and that it always precedes the synovial

Just below the zone of provisional calcification a proliferation of the connective tissue of the marrow spaces of the epiphysis takes place, this is accompanied by the formation of blood vessels, which may extend upwards through the zone of provisional calcification, causing a destruction of the joint cartilage, and meet the granulation tissue of the pannus, if present. Radiograms will show that the bone is much rarefied, but rarefaction is also found in injuries where the joints have been kept at rest for some considerable period, and it has also been demonstrated in the bones of dogs by fixing the joints in plaster-of-Paris for some time. Further, there is very frequently an accompanying proliferation of the endosteum of the marrow spaces which may result in the formation of new bone or cartilage. If this process goes on in both bones of the articulation the whole joint cavity gets filled up, adhesions take place between the two joint surfaces, the cartilages become absorbed, and new bone is formed from the endosteum of the marrow spaces—with the result that eventually real osseous ankylosis occurs between the two bones of the articulation.

Nathan found that, besides the marrow changes, in the early stages of the epiphyseal involvement there is an intra- or para-articular joint exudation, which on investigation was always found to be sterile, whereas the streptococci could nearly always be demonstrated in the neighbouring epiphysis. So that in the early stages of joint infection the joint exudate may be considered symptomatic.

The end-results differ in every case and very frequently in different joints in the same individual. For instance, if the proliferation has been confined to the epiphysis, it may *remain as a focus in the epiphysis and not penetrate the line of provisional calcification*; there it produces softening and enlargement of the bone, which becomes much rarefied, and if the joint is used much, or forcibly moved, distortion is caused and subsequent atrophy of the neighbouring bone is seen, similar to that in tubercular epiphysitis.

All these joints may go on to degeneration, no matter what state the joint is in. The joint has received an injury which has caused more or less destruction of the articular surfaces or the epiphysis, and therefore, as in tubercle of old standing, trauma old and new, and faulty statics, degeneration may ensue.

The Stage of Degeneration.

If one wishes to see pure cases of degeneration he must examine the joints of some individual, preferably well up in years, who has been bedridden for a number of years. The primary change is a degeneration by fibrillation of the hyaline cartilage of the articulation, commencing with the disappearance of the spindle-celled perichondrium. As a result of the fibrillation the cartilage cells are set free, their capsules rupture, and they disintegrate and disappear. The depth to which the fibrillation extends varies in different parts of the same joint. At times, as a result of the fibrillation, minute masses of cartilage and fibrillated matrix are set free into the joint cavity. The underlying bone may thus become exposed, and, if the process continues, the two osseous surfaces may be in contact. Wherever erosion of cartilage occurs there is practically always a compensatory growth of cartilage or of bone of the opposite articular facet, so that the articular surface of the two bones of the joint are always in contact, and thus, as a result of the erosion of the cartilage of one bone and a corresponding overgrowth of cartilage due to proliferation of the perichondrium of the opposite articulating surface, the surface of the line of articulation becomes very irregular and indented. End-results of all these changes in the joint, which may take years in their production, are luxations and ankylosis by deformity or locking.

Further, since in this type of joint, change by destruction of the cartilage takes place slowly, and is at first confined to a portion of the joint surface only, motion of the joint continues for a long time. Under these circumstances it always happens that the articular surface of the joint, denuded of cartilage and still movable, undergoes marked thickening of the bone trabeculæ, and the marrow spaces of the articular ends of the bones may become completely obliterated. The X ray appearances show that the bone is very dense, and the exposed bone surface under friction from constant movement gets highly polished, and is known as eburnated bone.

Secondary changes take place in the shafts of the bones entering into the joint. These changes consist in an increase in the activity of the perichondrium at the periphery of the joint, and consequent new formation of cartilage which may be transformed into bone, causing an irregular and nodular increase in the size of the head of the bone and producing much deformity, known as "lipping," which is really not a degenerative, but a proliferative change. In those joints in which inflammation is followed by degeneration, or because of the loss of surface conformation, muscle shortening or capsular contraction, and motion is impossible, greatly impeded, or its resumption after the active process has subsided has been unduly delayed, the atrophy which appears during the early stages becomes more or less permanent.

The Association of Neurological with Arthritic Symptoms.

Finally, there are certain peculiarities characteristic of some forms of chronic arthritis which are apparently very difficult to bring into correlation with an infective origin. Nathan says that the peculiar deformations of the hands and fingers, the acroparæsthesia, and the premonitory weakness and spasm cannot be ascribed to the infectious focus within the joint at all. In many of these cases the symptoms simply indicate nerve irritation, or at most a perineuritis. Thus one case may show distinctly the characteristic contracture and trophic disturbance of an ulnar neuritis. In others the ulnar neuritis is complicated by the wrist drop of a radial neuritis; while in others one gets the peculiar deformity following a median neuritis.

The fact that there may be peripheral and central neural involvement also explains the changes in the skin, such as glossiness and ulceration of skin and nails, the œdema and the anomalies of sweat secretion so common in some of these cases. Nathan, in his experiments on dogs, found that in a large proportion of cases that the joints of the vertebral column were involved in the same way as those of the hand. That is to say, that in early cases of multiple chronic arthritis involving the joints of the hand and digits he also found identically the same processes going on in the spinal column. Hence he argues that when neurological symptoms are associated with arthritis it must be concluded that the spinal column is involved in the morbid process, and that the vertebral changes, consisting of endosteal and subperiosteal inflammation, have led to epidural and perispinal *exudation, causing root or slight spinal compression, which* may or may not be permanent. If his deductions are correct it explains why so many cases of polyarthritis present muscular atrophy and acroparæsthesias in the early stages and even in the pre-articular stages. In such cases no doubt the epidural surfaces of the vertebræ have become involved before the peripheral articulations.

Nathan's paper on "Polyarthritis and Spondylitis," published in the *American Journal of Medical Sciences* for 1916, is a most interesting and instructive one. Marked cases of spondylitis with definite osseous changes produce in some cases well-marked neural phenomena, which may or may not be associated with a polyarticular arthritis, but the diagnosis of endosteal or periosteal inflammation of the bones of the vertebral joints in its early stages at present seems to be almost an impossibility even with the X rays. Still, the fact that Nathan was able to produce by experiments on dogs changes in the vertebral joints identical with those which have been described in the human subject is a very strong argument in favour of his theory.

There are still other reasons for marked deformity; there are cases with deformity and complete dislocation of the phalanges, though the power is not much affected and the deformity does not correspond to peripheral or central nerve involvement, in which the radiograph shows no change in the bones. It was pointed out that the early stages of joint infection are characterised by intra- and peri-articular effusions, and in some cases the effusion is enormous. An effusion which reaches great proportions always leads to relaxation of the capsule and periarticular structures and, finally, to dislocation of the joints.

Conclusion.

Let me conclude this paper with a word of caution from Nathan. "Though it is not unlikely that a focus in a tooth is sometimes, and one in the tonsil is often, the point of entry for bacteria, it should be remembered that once the micro-organism has entered the blood its connexion with the portal of entry ceases. For this reason, though the removal of the affected teeth or tonsil will, if these are really the site of the original focus (which is not by any means always certain even when they are abnormal), prevent reinfection or recurrences, such proceedings have absolutely no influence upon the joint condition as it already exists. Moreover, it must be remembered that a focus in the joint structures, like a focus anywhere else, besides causing local changes, may be, and no doubt often is, a source of general infection and metastases."

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LITERARY INTELLIGENCE.—A new set of Manuals for Medical Students is about to appear under the general heading of "The Students' Synopsis Series." The publishers, Messrs. J. and A. Churchill, announce the *immediate* issue of "Pharmacology," by Dr. Douglas Cow, and "Dentistry," by Mr. A. Bayford Underwood, while a "Synopsis of Surgery," by Mr. Ivor Back and Mr. A. Tudor Edwards, is in the press.

DR ALBERT ABRAMS'S
METHOD OF PERCUSSION
TO DELINEATE THE SOLID ORGANS IN THE CHEST AND ABDOMEN.

BY SIR JAMES BARR, M D GLASG , LL D LIVERP AND TORONTO

IN THE LANCET of March 6th there appeared a very interesting and instructive article by Dr Abrams on *Topographic Percussion and Visceral Tonicity*. This paper, I hope, will further elucidate some of the problems there set forth Dr Abrams reckons that in the ordinary run of diagnosis there are about 50 per cent of errors, and recently Dr Edmund I. Spriggs has followed in a similar strain In order to reduce those errors to a minimum Dr Abrams has introduced various novel methods of diagnosis, but in this communication I intend to confine my observations to the question of percussion Dr Abrams is, perhaps, doing more than anyone else in the present day to resuscitate the lost art of physical diagnosis, but he would be among the first to acknowledge that there is no individual or system infallible, and would, no doubt, agree with his countryman that "he who never made a mistake never made anything" All Dr Abrams s methods require an acute sense of hearing and a delicate sense of touch Those who are not thus endowed, or who are unwilling to take the trouble to cultivate those senses, need not waste their time in reading this paper

Dr Abrams's original description of "A New Method of Percussion" was very brief, only occupying about three octavo pages in large type It appeared in the *Medical Record* of Feb 16th, 1918, and was reprinted in *Physico Clinical Medicine* of December of the same year I have not seen any reference to the method in current medical literature, and I shall therefore deal with it somewhat in detail His article begins —

> "In percussion despite its antiquity and supreme clinical importance, it is difficult to eliminate the personal equation and the prejudiced preconception of perceiving what is expected to be perceived In dwelling on the deficiencies of this art the writer does so, not as a rebuke to the Herculean efforts made by traditional investigators, but to arraign our complacency, which accepts things as they are and views as a sacrilegist anyone who questions established methods "

Dr Abrams's Method of Mapping Out the Deep Cardiac Area

I shall begin with his method of mapping out the deep cardiac area, as that will form a good basis for what follows There are many physicians who honestly acknowledge that they are unable to percuss out the deep cardiac area, and question the ability of anyone else to do so There is at least one distinguished physician who sarcastically asks those who, he thinks, attempt the impossible, have you percussed the heart in systole or diastole? He seems to have forgotten that there is very little variation in the size of the heart on the whole during the various phases, and it occupies the same place during all its phases The superficial cardiac area is of no value, and many physicians who have the temerity to illustrate their writings with sketches of the deep areas merely portray their own ignorance It is surely, therefore, important that some serious attempt should be made to arrive at accuracy

In carrying out Abrams's method the patient should stand on a large aluminium or copper plate which has been earthed, and face due west It is convenient to have two plates, each of which need not be much larger than a large foot, as they can be placed widely apart, and in these observations it is important that the limbs should be well separated to prevent any risk of short circuiting For experimental work a single large square plate of at least four square feet in superfices is very useful as it can be placed so that the four sides will represent north, south, east, and west On a plate of this size the patient can be turned rapidly in any direction, and his feet kept widely apart, or brought close together as desired

There are many physicians who do not know the orientation of their own consulting rooms, and for such the acquisition of a compass is necessary At present in this country the magnetic meridian runs 16 degrees west of true north, which is rather less than a point and a half of the compass, for practical purposes this may be disregarded but if you wish to find the true north and west, &c , you have only to reckon a point and a half to the right of your compass bearings Of course there must be no magnetic material in the room sufficient to disturb your compass

When the patient is standing on the earthed plate or plates, facing due west, with arms held away from the sides and chest bared, you begin to mark out the left border of the heart You give a rapid series of brisk but gentle taps on the acromial end of the left clavicle with the middle finger of the right hand, at the same time you firmly draw the fore or middle finger of the left hand over the chest towards the heart, and as soon as this finger reaches the border of the heart there is a distinct change in the note of the percussion on the clavicle Moreover, if your finger be in an intercostal space you can distinctly feel the impact of the heart When you reach the point yielding dullness you can correct your observation by moving the skin back without altering the position of your finger on the latter, and you then get a clear resonant note Then bring your finger, with the skin, forward to the former position and the note again becomes dull These observations can and should be corroborated by the stethoscope, shifting the bell from without towards the heart, and once the border of the latter is reached you hear a distinct change in the percussion note The old wooden stethoscope is the best, but if for this work it is found to be inconvenient I use a small phonendoscope with a centre knob about five millimetres in diameter No one ever did or ever could become a skilful auscultator who uses that abominable spring contraption called a binaural stethoscope, sensitive ears could not bear such pressure and extraneous sounds for five minutes

Having marked out the left border with a dermatograph, you proceed in a similar manner to delineate the right border by percussing the acromial end of the right clavicle If you be ambidextrous you had better percuss with the left middle finger and use the right hand for delineating, there is, however, no difficulty in slightly changing your position so as to percuss with the right hand

The same method can be used for mapping out pleural effusion, lobar pneumonia, solid patches in the lung from any cause When the patient is earthed and facing west Dr Abrams has discovered specific areas of dullness in the chest and abdomen in certain diseases To take only one example, which can be easily verified In cases of cancer no matter where situated, when the patient is earthed as before directed, let him place his left hand on his right shoulder so as to pull the left scapula outwards and hold his right arm away from the body there will be found an oval area of *impaired percussion* about 3 in long by 2½ in wide in the left interscapular area Dr Abrams's figures, 7 by 5 cm , are rather less This can be easily mapped out with a stethoscope when percussing the acromial end of the left clavicle or more conveniently by his other method of direct percussion—viz , place the left forefinger on the chest, overlap it with the middle finger, and then percuss the terminal phalanx of the latter As the polarity of cancer is positive this dull area disappears when the patient faces south and returns when he again faces west

Another Method

There is another method of mapping out the deep cardiac area similar to that generally adopted in mapping the hollow organs such as the stomach and to which Pirera lays claim Place the bell of the stethoscope over the superficial cardiac area, draw your finger from without towards the heart, and when you have reached the border of the latter, or rather when you have somewhat overlapped it there is a distinct change of note, this is like percussing out a ledge underneath a table and is no more reliable The ease and accuracy with which you can mark out the ledge depends on the amount of support or, in other words, on the tone of the ledge and on the extent of the overlapping board In accuracy it is not comparable with Abrams s method The upper border of the liver can be determined either by the palpatory or auscultatory method with percussion of the acromial end of the right clavicle For the upper border of the spleen percuss the left clavicle

The lower border of the liver can be determined by the palpatory or auscultatory method, especially the latter, and percussing the right anterior superior iliac spine For the spleen percuss the left anterior superior iliac spine Both kidneys can be easily mapped out by the auscultatory method, and percussing the respective iliac spines The same methods can be used for mapping out growths in the abdomen

Unfortunately, patients cannot always stand up, nor is it always convenient to have them earthed and facing the west With patients lying in bed and without any particular regard to the points of the compass, I have successfully carried out Abrams s method, but in such circumstances I prefer a method which I introduced many years ago for locating a lobar pneumonia within the first six or 12 hours of its existence. Possibly I may be prejudiced because the method is my own. I lay the left hand with all the fingers spread out firmly on the chest so as to eliminate the vibrations of the chest walls; I then lightly percuss the middle finger and the slightest impairment in the resonance is easily detected, the lighter the percussion the more easy it is to determine differences in resonance. This method is applicable to the delineation of any organ in the chest or abdomen.

When I was engaged teaching students I used to show them how to palpate the deep cardiac area blindfolded, and then allow them to verify my palpation area by percussion. This is an exceedingly simple matter in children, and in any person with pliant costal cartilages. In all methods of percussion it is a good plan to shut your eyes as thus your hearing is in no way distracted, and as Abrams would say, you are less liable to hear simply what you expect to hear.

A NOTE ON

THE ERYTHROCYTES IN MALARIA.

BY ROBERT CRAIK, M.D. GLASG.

SOME years ago I saw a man in whose blood malignant rings were found, and noticed that, although infected corpuscles were not as numerous as 1 in 1000 reds, yet multiple infection of a disc with two or three parasites was not uncommon. Again, in 1916, in a soldier with benign tertians, a disc was seen with two parasites not infrequently. Segmentation in these two parasites occurs mainly in internal organs like the spleen, where choice of corpuscles may be restricted; but even so, in malignant tertian multiple infection is so conspicuous as to suggest lessened resistance in certain erythrocytes.

In this connexion it occurred to me that the action of lead might yield information. When lead is given, in health or in minor ailments, the blood film in most persons shows, in three to seven days, a few polychrome, polychrome punctated, and punctated reds. In a man of 22, with slight gleet but otherwise healthy, a film on the sixth day of administration showed no change. On the next day a distinct change was observed, and a count gave 4,800,000 reds and 8000 whites. While counting 100 whites there were seen 40 reds showing punctate basophilia—that is, 3200 per c.mm., or 1 in 1500 reds. On the following day these were increased—certainly 1 in 1000 reds. Beyond this there was little increase, and the lead was stopped on the twelfth day. There were usually as many polychrome as punctated reds. My impression is that punctated discs are always polychrome when they first appear.

There is general agreement that polychromasia means premature birth of the erythrocyte, and that punctate basophilia denotes something more pathological. Even in mild anæmia the former is seldom absent, whereas the latter is rarely present unless the anæmia is really serious. Only when punctate basophilia is seen in normal blood associated with but little polychromasia is it pathognomonic of lead poisoning. Thus lead enables one to turn into the circulation marked discs by which parasites may be traced.

Accordingly in two mild tertians, with infected corpuscles less than 1 in 500, and with practically normal blood, this mixture was given: Pb acetate 20 gr.; ac. acet. dil. ʒi.; aq. (distil.) chlorof. ad ℥viii., ℥ss. t.d.s. On the fourth day young rings were found in polychrome and in punctated discs. Young parasites occurred in normocytes also, and some marked discs were uninfected. Next day, as well as rings, amœboid and large pigmented forms were seen in punctated discs. This proves the life of a punctated disc to extend to two days at least. In polychrome or in polychrome punctated discs there were never seen any but young rings. This proves that within 24 hours the polychrome disc develops into a normocyte. In the same time a polychrome punctated becomes simply a punctated red. The fact that polychromes increase hardly at all after the first day is thus explained, for we may assume the daily output is about the same.

For the same reason we may infer that punctation is a transient phase in the life of an erythrocyte. And I suspect that a similar test with the quartan parasite would show that punctation disappears within 72 hours in approximately normal blood. Now these young, immature erythrocytes were in small numbers, about 2 in 1000 reds, yet the invading parasites, which were not numerous, readily found them. Multiple infection suggests that certain corpuscles are less resistant than others and the case in point indicates that these are the youngest corpuscles. Schüffner's dots were present in neither of these patients, but the dots should not be mistaken for punctate basophilia. The latter spots are blue-black and present in uninfected discs also; the dots are red, occur in infected discs only, and the smallest invading parasites are not associated with them. With median rings it is not easy to be sure whether a finely granular condition or a diffuse coppery rose (Wright) staining is the first stage. As the parasite ages red dots become distinct. In short, there is a basophil polychromasia and punctate basophilia on the one hand, and azurophil polychromasia and punctate azurophilia peculiar to the infected disc on the other.

Finally, in severe and prolonged malaria punctate basophilia often appears, but never apart from other signs (e.g., poikilocytosis, erythroblastosis) of serious anæmia. In such cases Schüffner's dots must have been encountered in the same film, but I am not aware that they have been seen in the same corpuscle with punctate basophilia. Possibly they are not so closely associated. The dots may only occur on invasion of mature corpuscles with full Hb complement. This would explain the absence of dots in most cases of benign tertian, the organism being less virulent or the corpuscles so resistant that only the youngest are vulnerable. And though infected cells are only 1 in 500 (= 10 c.cm. of blood destroyed in two days) the loss is confined to young cells and will lead to increase in the proportion of older cells—that is, to increase of death-rate. No doubt this will be met by erythrogenesis, but the result will be increase of less resistant cells, and this will play the game for the parasites.

Ealing, W.

ON THE CHOICE OF INDIVIDUALS FOR COLLIERY RESCUE WORK.

BY G. ARBOUR STEPHENS, M.D., B.S., B.SC. LOND.

As honorary medical officer of the Swansea Collieries Rescue Station I thought it advisable to make a medical examination of some of the men attending the practical classes held by Mr. Riddiford at the premises on the Strand. At these classes the men are trained to carry out various laborious exercises in a gallery that is filled with noxious fumes, and in order to do this they have to wear the oxygen apparatus under service conditions. With Mr. Riddiford's help I have examined over 50 men drawn from various collieries, and the conclusion I have arrived at is that the majority of the hearts are not first class. The table of results of this examination shows that the men who offer their services do so, not necessarily because they are strong and virile, but for other and varying motives.

The health-rate of the colliers is good, so that one would have expected a better class of man from the physical point of view, but the fact is that a large proportion of the men were "officials" of one grade or another. For rescue work one should have strong, active, healthy men, and if in the future the question of remuneration should arise, efficiency as well as proficiency must be considered. The following examples by way of illustration may be of interest:—

1. A man, aged 63, with thickened arteries and an abnormal heart, was considerably distressed after the practice. His age alone ought to have precluded him, but no doubt some element of "bravado" entered into his reasons for taking up the work.

2 One of 57 had a heart whose reserve power was much below normal

3 A man, aged 45, was upset after the practice and his heart was abnormal

4 The following, aged 47, 44, 41, 42 and 41, all had abnormal conditions of the heart

5 Only two of 40 years of age had satisfactory hearts but one of these had poor teeth

6 Several others had pyorrhœa so that obviously they were not in the best condition for combating adverse conditions Proper emphasis should be laid upon the mouth conditions of those who undertake rescue work

7 Four men were in a "nervy" condition, one of them had an irregularly beating heart, whilst another suffered from insomnia and had on one occasion lost his memory for three months

8 Smoking in several cases was indulged in to excess, with the result that men were not fit A, aged 37, smoked 4 ounces of shag per week and his heart was abnormal, B, aged 24, admitted to 3 packets of woodbines a day, which showed their effect on his heart, C smoked 2 ounces of shag a week and had an irregular heart Only one heavy smoker (and he smoked 40 cigarettes a day) had a good heart

Table of 50 Cases Showing Effects of Smoking Habits on the Heart

No	Age	Smoking habits	Condition of heart and remarks
1	30	10 cig a day	Mitral murmur
2	20	Non smoker	Toxic
3	21		Heart sounds weak
4	32	2 oz shag a week	Toxic (extra systoles)
5	57		Toxic
6	27	Non smoker	Very good
7	40*	15 cig a day	Toxic (pyorrhœa present)
8	29	10 ,,	Good
9	23*	Non smoker	Very good
10	25	40 cig a day	,
11	24	20 , ,,	Toxic
12	41	2½ oz a week	
13	40	Non smoker	Very good
14	42	Left off 6 weeks ago	Good
15	32	15 cig a day	Toxic (patient very nervous)
16	39		Very good
17	63	3 oz a week	Mitral murmur (thickened arteries)
18	30	Non smoker	Heart sounds feeble (patient had lost memory for 3 months)
19	24	15 cig a day	Toxic
20	38	Non smoker	Good
21	45		Fair (patient somewhat nervous)
22	47		Mitral murmur
23	31		Good
24	37	1 oz a week	Heart sounds weak
25	37	4 oz shag a week	Toxic
26	31	10 cig a day	Fairly good
27	34	Non smoker	Toxic (pyorrhœa present)
28	26	10 cig a day	Very good
29	28		
30	27	20 cig a day	Fair
31	22	Non smoker	Good
32	22		Toxic
33	27*	10 cig a day	Very good
34	26	Non smoker	Good
35	26	Heavy smoker	Heart irregular
36	30	20 cig a day	Toxic
37	39	20 ,, ,	Toxic (dyspnœa present)
38	39	10 ,	Heart sounds faint
39	26	10	Toxic (dyspnœa present)
40	32	7 , ,	Toxic rapid (bad teeth)
41	30	10 ,	Very good
42	44	10 ,	Toxic
43	37	15 ,	Toxic (bad teeth)
44	31	20 ,	Fair
45	44	10	Fair (pyorrhœa)
46	41	4 oz shag weekly	Very good
47	41		Fair
48	38		
49	33	10 cig a day	Toxic (patient nervous)
50	38	Occasional	Very good

* = ex army man

The term toxic I apply to a state of the heart produced by some toxin be it nicotine or any auto-intoxication estimated by means of what I call a cardioscope which consists of a bell receiver sufficiently large enough to cover the whole cardiac area With such an instrument the two sounds of the normal heart are equal whereas toxicity is shown by the marked shortening of the second sound

9 One man turned up who had not been to bed for 48 hours and consequently was not fit for practice, such thoughtlessness might prejudice the lives of those to be rescued

10 The three men who gave the best results were ex army men, one of whom had been in Gallipoli and the East for a long time

It is said that one volunteer is worth a dozen pressed men, but, as a result of my examination, I cannot agree with that statement If this duty of rescue has to be done it must be done well, and undertaken by those men who are in a sound physical condition

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL

PERFECT DENTITION IN OLD AGE

By J O Butcher L D S R C S Eng

THE photographs are from casts taken of the mouth of a woman, aged 84 years In my experience this condition is unique The missing molar 7| I removed under nitrous oxide about two years ago at the age of 82 years, and I regret I could not procure models previous to that operation Two or three of the superior incisors have been filled on the labial surface, and one or two other fillings can be seen in the photographs, otherwise the teeth are all strong and extremely well formed, and are more than efficient for the need of a person of such advanced age The patient is blind from cataract, and suffered from a severe attack of typhoid at 18 years of age, and scarlet fever at 11 years She is very moderate in diet Both parents are said to have had exceptionally good teeth

Cast of the mouth of a woman of 84 with 31 good strong teeth, the arrows mark the median plane A, photograph taken from left side

B photograph taken from the right side the right upper middle molar has been extracted

Harley street, W

HYSTERICAL PARALYSIS IN A BOY.

By J. Arthur Gorsky, L M S S A,

HOUSE PHYSICIAN WESTMINSTER HOSPITAL

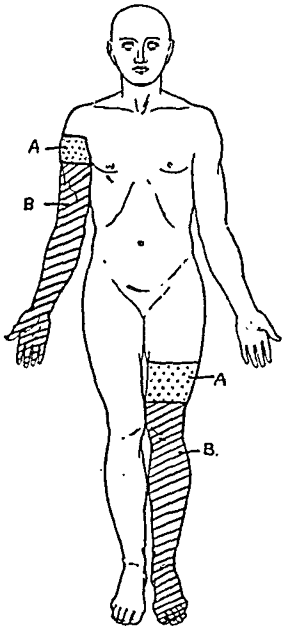
THIS case appears worth recording because of the sudden cure after a long illness

The patient a boy scout, aged 14 years was taken ill four months ago with very severe headache after returning from a cinema He remained in bed for several weeks and early in 1920 was admitted to a London hospital for two weeks where a diagnosis of meningitis was said to have been made At the end of this period he was sent to a convalescent home for a further three weeks, when he returned home he was found to have total paralysis of the right arm and left leg He had in addition become deaf, especially in the right ear, and partially blind, the symptoms being most marked in the right eye. The boy had no elevation of temperature, and there was no history of vomiting. During the last two or three weeks of February, 1920, the patient had numerous convulsive attacks, with violent twitchings of the head and limbs, and it is stated that three people were required to hold him down. During these attacks there was no loss of consciousness, and the boy was able to reply to questions. He neither bit his tongue nor passed urine during them.

During the week before admission to Westminster Hospital he had attacks of barking like a dog, lasting a quarter to a half hour at a time, and audible several doors away along the street. Sometimes, it is stated, he snapped at bystanders.

The patient was seen by Sir James Purves Stewart, senior physician to Westminster Hospital, who recognised the condition as hysteria, and the patient was admitted on March 4th to hospital for treatment. It is interesting to note that the diagnosis made previous to admission had been "tumour and meningitis at the base of the brain." He had been watched assiduously by his mother and benevolent lady visitors, and was also frequently visited by his spiritual adviser to soothe his dying moments.

Examination by Sir James Purves Stewart, March 5th, 1920.—He appeared an intelligent boy with normal speech and articulation. When shown a printed card and asked to read it he said he could not understand it. When spoken to he appeared deaf in the right ear and placed his hand to the left ear; nevertheless, later on, when told in an undertone to put out his tongue, he did so. The optic discs, pupils, and cranial nerves were normal. To cotton-wool touches there was anæsthesia of the right upper limb up to a horizontal line an inch below the acromial process, and of the left lower limb up to an inch below the middle of thigh. To pin-pricks there was analgesia up to a level of 3 inches below that of the cotton-wool anæsthesia. (See diagram.) The patient had apparent loss of joint-sense in the right fingers and elbow, and in the left foot and knee. With the eyes closed the "Yes-No" test was successful—i.e., the patient said "Yes" every time he was touched on the normal aspects of the body, and "No" on the anæsthetic areas. The right upper limb was much feebler than the left, but he could execute movements at all joints. (When previously examined on March 2nd and 4th the right arm was flaccid and totally paralysed.) The left lower limb was feebler than the right, but no individual movement was impossible in bed. He could raise it against slight resistance.



A = cotton-wool anæsthesia.
B = pin-prick anæsthesia.

Gait.—He could not stand or walk alone, and wriggled violently with trunk and limbs when supported on both sides. The supinator-jerks, knee-jerks, and ankle-jerks were brisk and equal. There was no ankle-clonus and the plantar reflexes were flexor. The cremasteric reflexes were normal, and the abdominal reflexes were equal and normal. Within a few minutes after the foregoing examination, by dint of encouragement and suggestion, the patient became able to walk alone, at first with difficulty, tending to cross his feet in a zig-zag fashion. Later he walked quite normally, and was then able to hop alternately, first on one leg and then on the other. After a few minutes' practice with a faradic battery, gradually diminishing in strength, the patient lost his anæsthesia and analgesia. He still remained partially blind and deaf. The patient was therefore taken up to the electrical department (he ran upstairs quite well), where Dr. E. S. Worrall applied the galvanic current to his temporal regions. The patient noticed the normal flash passing across his eyes as the current was reversed. Prior to this he was unable to read a printed card placed in front of him, but following the flash he was able to read perfectly. The hysterical deafness was promptly cured by the application of high-frequency tubes to his ears.

The interesting feature of the case is that although ill for four months the patient was cured within a few minutes after the examination and three days later he left hospital for a holiday at Weymouth.

I am deeply indebted to Sir James Purves Stewart for his kindness in allowing me to publish the notes of this case.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

WAR SECTION.

SCURVY.

A MEETING of this section of the Royal Society of Medicine was held on May 10th, when a paper on Scurvy was read by Surgeon-Captain P. W. BASSETT-SMITH, R.N., which appears in another column. In the short discussion which followed,

Major-General Sir WILLIAM GRANT MACPHERSON said that scurvy in Mesopotamia, notwithstanding the observations of Colonel W. H. Willcox, was not altogether due to want of recognition of its causes, but to the impossibility of getting fresh vegetables and other foods to troops operating in certain areas. These foods went bad in consequence of climatic conditions before reaching the troops, and it was these troops which suffered most. As regarded the resemblance between scurvy and beri-beri, this was pointed out by himself in a report which was published in the official reports of the Russo-Japanese war. He had observed thousands of cases of beri-beri amongst the Japanese in Manchuria in 1904 and 1905, followed by some 20,000 cases of scurvy amongst the Russians in Port Arthur, and the resemblance between the two diseases in their clinical aspects was so marked as to form the subject of a special report. The cause of beri-beri amongst the Japanese was the use of highly milled and over-cooked rice as the chief ration, and that of scurvy amongst the Russians the almost entire absence of fresh food and vegetables during the siege of Port Arthur.

Colonel C. J. MARTIN thought it established that the varieties of antiscorbutic substances or vitamines present in different foodstuffs varied greatly in their reaction to and destructibility by heat. He considered that fresh meat, if not over-cooked, was an extremely valuable antiscorbutic, and that orange-juice could stand prolonged heating without losing its antiscorbutic properties, while cabbage very rapidly lost these properties after boiling.

Colonel S. L. CUMMINS congratulated Surgeon-Captain Bassett-Smith on his valuable contribution to the practical as compared with the purely theoretical aspects of the prophylaxis of scurvy, and considered that both services were highly indebted to him for his labours in the preparation of a suitable antiscorbutic in such a portable, efficient, and convenient form as the lozenges he had exhibited to the meeting.

SECTION OF SURGERY: SUBSECTION OF ORTHOPÆDICS.

ANNUAL GENERAL MEETING.—EXHIBITION OF CASES.

THE annual general meeting of this section of the Royal Society of Medicine was held on May 4th, Mr. E. MUIRHEAD LITTLE, the President, being in the chair.

Mr. LAMING EVANS showed radiograms of a case of Dislocation of the Hips, Knees, Ankles, and Radii. As the patient was unable to be present the case will be shown at a meeting of the section next session.

Mr. C. J. MARSHALL showed a case of

Genu Varum of Late Onset.

The patient was a youth of 18 years. Nothing abnormal was noticed until a year ago, and little change occurred until six months ago, since when the condition had been growing rapidly worse. The general health had been otherwise good and there was no history of previous illness. The parents stated that the patient was markedly inferior to his brothers in height and general build. He was a sallow, greasy-skinned youth, about 5 feet 4 inches in height. The lower limbs showed severe genu varum, the knees being 5 inches apart, with the malleoli in contact. The curvature was more marked on the left side. In each limb the femur and tibia shared in the deformity, the tibia showing the greater change. Above the inner condyles of the femora a small expansion of the bone could be felt at the level of the epiphyseal cartilage. There was no such change in the tibiæ The lower ends of the radii and ulnæ seemed expanded, and the radial styloid process was lower than usual Severe gingivitis was present The spleen was slightly tender and descended to two fingers' breadths below the ribs on inspiration *The glands and joints showed nothing abnormal The Wassermann reaction was negative Except for a leucocytosis of 21,000, the blood was normal* Radiograms showed changes in the bones concerned, which were fairly typical of rickets The epiphyseal interval was increased, and the adjoining parts of the diaphyses and epiphyses showed rarefaction

In the case of the femora the softened tissue projected on the inner side Both in the femora and in the tibiæ these changes affected *only the inner aspect of the epiphyseal regions* On the outer sides fusion of epiphysis and diaphysis seemed already to have taken place At the wrists identical changes were present at the epiphyseal lines in their entirety There was apparently delayed growth of the ulnæ, the line lying much higher than that of the radius In addition, the line in the radius was directed obliquely downwards and to the radial side

Mr Marshall considered that the feature of the case chiefly meriting attention was the curious selective action of the pathological process at the epiphyses in the knee region Accepting the process as essentially the same as rickets, we were confronted with the question of late rickets or continued rickets If the latter, why had fusion occurred already on one side of the epiphyses two years in advance of the usual date? The therapeutic test would decide whether *the gingivitis was the source of infection There might possibly, in addition, be some glandular deficiency* There was no evidence to place the case in the category of "nephritis associated with deformities at the knees" described in THE LANCET of Jan 3rd last

The treatment he proposed to adopt was attention to general hygiene, dental toilet, thyroid feeding for a time, and gradual correction of the deformity by screw pressure on metal plates embedded in plaster cases, gripping thighs and legs After a suitable period of recumbency, sufficient to procure correction, he would order the wearing of knee splints with moulded thigh and calf pieces, and irons to the ankles

Mr R C ELMSLIE said that in late, continued, or recrudescent rickets, *there were more characteristic changes than in this boy Possibly the changes in* bones which are called "rickety" were not always due to the same cause He had met with the same changes in renal disease and had seen cases of intestinal infantilism which had all the appearance of rickets In this case the changes were like those of rickets, and were probably due to sepsis He would give such food as we knew from our experience of rickets would assist ossification

Mr ELMSLIE showed a case of

Paralytic Dislocation of the Hip

It was that of a boy, aged 15, who had had infantile paralysis as a baby The right lower limb was now affected and was 3 inches shorter than the left The muscles around the hip were fairly strong, and all groups appeared to be active The thigh muscles were normal, but below the knee the tibialis anticus was powerless, the remainder of the anterior tibial group being unaffected The calf muscles were paralysed, with the exception of the long flexors of the toes Talipes calcaneo valgus was present There was a scar on the outer side of the foot, but Mr Elmslie *did not* know what operation had been performed The hip was dislocated, the head of the femur being palpable at the level of the anterior superior iliac spine, the femoral neck was apparently much anteverted X ray examination showed that the femoral head was well formed but the acetabulum was shallow, and its upper margin was much flattened

The PRESIDENT suggested that the case might be one of congenital dislocation, poliomyelitis occurring subsequently As all the groups of muscles around the hip joint were active, he thought *that the* paralysis could not have produced the dislocation

Ankylosis

Mr P. B ROTH showed two cases of Ankylosis

The first was that of a woman, aged 43 years, with bony ankylosis of the left knee In May, 1919, after some kneeling, the left knee began to swell and became hot and painful Cold dressings were applied and improvement followed, but not recovery She spent five months in bed, and treatment by Scott's dressing and splinting was carried out No operation of any kind was performed In March, 1920, she came to hospital complaining of stiffness of the left knee and swelling of the right ankle, the swelling coming on at night and subsiding by the morning On examination there was complete bony ankylosis of the left knee, which, fortunately, had occurred in the extended position There was slight heat and swelling of the right ankle The pupils were unequal, there was severe pyorrhœa, the Wassermann reaction was negative As X ray examination of the right ankle suggested gonorrhœa, treatment by gonococcal vaccine had been started

The second case was one of bony ankylosis of the right ankle-joint in a woman aged 42 After having given birth to six healthy children, all of whom were alive and well, there was one premature birth at six or seven months, followed by two miscarriages Shortly after the last miscarriage some ulceration appeared round the right ankle, and an abscess formed in the left buttock The right foot had become dropped, and for this a splint was applied for six weeks, but no improvement followed When seen in May, 1919, there was complete bony ankylosis of the right ankle joint with the foot fully plantar flexed As the patient was unable to walk owing to the position of the foot, an anterior cuneiform osteotomy was done in October, 1919, and the foot brought up to a right angle Bony ankylosis had again formed, but, with the foot in that position, the patient was able to get about comfortably

Mr H A T FAIRBANK showed a case of

Bilateral Congenital Elevation of the Shoulder

The patient was a girl aged 10 years and the mother had noticed that she could not raise the arm properly only two months ago Both scapulæ lay at an abnormally high level, the right being higher than the left Both were rather small, and that on the right had the vertebral border tilted up On both sides the movements of these bones were much restricted, the vertebral border hardly moved at all from the spine, yet the left arm could be raised to the vertical, whilst the right only moved to a position a little beyond right angle abduction The spinal column was flattened in the upper dorsal region, and there was a slight long dorsal curve to the right Complete electrical examination of scapular muscles had not yet been carried out A radiogram showed the presence of 13 ribs on each side, the highest being well formed and apparently a normal first rib on each side The fifth, sixth, and seventh dorsal bodies, reckoning all ribs as bone ribs, seemed to be flattened and crowded together Considering the malposition of the scapulæ and the extra ribs, the vertebral deformity was considered to be congenital and not the result of disease No treatment was considered necessary

Mr ROTH read a note on

Abnormal Torsion of the Femoral Shaft

At a recent meeting of the section he had shown a small child with waddling gait of unknown origin, and Dr Martin Berry had suggested that it was a case of abnormal torsion of the femoral shaft His paper was an account of a newly published work by Professor Karl Pearson entitled "A Study of the Long Bones of the English Skeleton"[1] He (Mr Roth) thought that some particulars of the condition might be of interest to members of the section

1 *Normal torsion of the shaft* —There exists in the normal femur a torsion or twist of the shaft If the upper end be regarded as fixed the torsion consists of a rotation inwards of the lower end This torsion affects the whole of the shaft It is much more marked in the left femur than in the right, and slightly more marked in the female than in the male Thus in 735 femora measured, of which 359 were right and 376 left, the average angle of torsion for the former was 21 8° and for the latter 27 7° Of the 359 right, of which 208 were males and 151 females, the average angle for the former was 21 7°, and for the latter 22 0° Of the 376 left, of which 211 were males and 165 females, the average angle for the former was 26 7 , and for the latter 28 7° The largest angle recorded was 69 6°

2 *Measurement of the torsion* —To measure the amount of torsion a torsiometer was devised for use with the detached femur

3 *Abnormal torsion of the shaft* —When the lower end of the femur is rotated inwards the torsion is known as *positive torsion* when the lower end of the femur is rotated outwards it is known as *negative torsion* Mr Roth suggested that marked *negative torsion could certainly give rise to symptoms, and he considered his case* of the child with waddling gait as an example of the condition Of the 735 femora examined by Professor Karl Pearson and his co workers negative torsion was present in 13 cases or 1 76 per cent, the average negative angle being 8 7° In six of the cases there was deformity of the shaft suggestive of rickets

4 *Recognition of abnormal (negative) torsion in the living subject* —His case showed the following features (1) the presence of rickets, (2) waddling gait, (3) rotation of the thighs outwards, so that when the child walked the two feet

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[1] Reviewed in THE LANCET May 15th

enclosed an angle of 90°; (4) no demonstrable radiographic abnormality; (5) when supine on a flat surface, with the feet touching and toes pointing directly upwards, the great trochanter occupied a more anterior position than normal. The *normal position for the trochanter* with the patient in this position was exactly midway between the surface of the table and the upper surface of the thigh. In an older subject it might be possible to demonstrate the condition radiographically. The small trochanter ossifies at 12 or 13 years, and in the position described above, if negative torsion be present, the trochanter will be twisted out of sight.

5. *Treatment.*—The child must be taught to walk with its feet pointing straight forwards. If after several years of instruction and supervision the waddling gait persisted, there appeared no alternative to an osteotomy of the femur, with rotation inwards of the lower fragment for the number of degrees, and fixation in plaster.

An interesting point was Professor Pearson's discovery that the left femur was normally much more twisted than the right. One would have expected that the right foot would be more turned out than the left, but Mr. Roth said that he knew of no observations confirming this. It had been suggested to him that this might be why a blind-folded person set to walk straight across an open space walked in a circle. The cause of the condition he supposed to be a rickety softening of the bones. When one lay on one's back there was always unconscious rotation outwards of the thighs, due to gravity, and in a rickety child this rotation affected the growing architecture of the bones.

SECTION OF LARYNGOLOGY.

EXHIBITION OF CASES AND SPECIMENS.

A MEETING of this section of the Royal Society of Medicine was held on May 7th, Dr. A. **BROWN KELLY** occupying the chair.

Caseous Rhinitis.

Dr. **DAN MCKENZIE** showed a man, aged 61, the subject of Caseous Rhinitis.

His complaint was of nasal obstruction—on the right side for four months, on the left for two weeks. Two months of pain in the right supra-orbital region was relieved by epistaxis two weeks before the exhibitor saw him. There was an ill-defined swelling of the right cheek and some bulging of the superior maxilla. Since the onset the patient had become 2 st. lighter, and there was a foul discharge from the nose. There was a fleshy growth in the nose, bulging from the ethmoidal region on both sides. It looked like the malignant growth some had suggested. On trying to secure a portion for microscopy its nature was revealed, and its evacuation by syringing and curetting was commenced, but was not complete until six months had elapsed. A large perforation remained in the ethmoidal septum, and most of both ethmoidal labyrinths had disappeared. He could not find out anything about the pathogenesis of the condition. The caseous material was composed only of amorphous granular lipoids swarming with bacteria.

Dr. W. H. **KELSON** spoke of a case he showed in 1904. Though this condition looked like malignant disease, it did well when treated and recurrence was very rare. In his case staphylococci and Klebs-Löffler bacilli were found.—Mr. W. **STUART-LOW** remarked on the comparative rarity of these cases in later years. He thought the condition was due to pressure.—Mr. **NORMAN PATTERSON** referred to two cases in which caseous rhinitis was associated with malignant disease, and the diagnosis in the first instance was caseous rhinitis.—Mr. A. **RYLAND** said that in a case of his own the antero-meatal wall was broken down, and there was limited ethmoid disease in the nose. One patient had an ethmoid polyp, and he got her to blow down the nose, when she evacuated a large quantity of caseous material. The tip of his little finger went easily into the antrum. The report on the evacuated material was streptothrix in abundance, with other micro-organisms.—Mr. F. **SPICER** referred to a case in a man, aged 70, in whom the condition recurred five or six times.—The **CHAIRMAN** referred to 12 cases he had seen, but none so marked as that now shown. In one he diagnosed malignant disease, owing to bulging inwards of the antral wall and the amount of tissue present. Rhinitis caseosa was not a morbid entity, but the name served to indicate a condition in which, owing to mechanical causes, secretion was bottled up, became stagnant, and underwent chemical and physical changes. A foreign body might be present, but stagnation might occur in one of the accessory sinuses or cavities. He described several of his cases. Thorough ventilation and drainage of the aperture seemed to end the trouble.—Dr. G. W. **HILL** said that in the ten cases of the condition he has seen there was generally some obvious origin; in three there was necrosed bone, two were syphilitic. He referred to an operation for the condition which he did on a valuable horse.—Dr. J. **DUNDAS GRANT** agreed that the cause was generally some mechanical obstruction. In some the shape of the turbinate body favoured obstruction, and the presence of a slight cause of inflammation precipitated the condition. In one case he found a piece of blotting-paper.

Other Cases.

Dr. **DAN MCKENZIE** exhibited a case of Dental Abscess of the Nasal Septum. The patient, aged 19, a week before coming to hospital developed an alveolar abscess in connexion with the root of the right upper lateral incisor. A few days later it broke, but the nose became completely blocked. Pus could be squeezed down from the nose into the mouth, where it emerged from the opening in the gum. There was no history of trauma.

Mr. **FRANK A. ROSE** showed a Tooth which he removed from a right secondary bronchus. A skiagram was also exhibited.—Dr. **IRWIN MOORE** congratulated Mr. Rose on his success. An important feature was the removal by the per oral method. He referred to cases in which attempts to remove a foreign body from the same situation had been very difficult and failed more than once. This accident appeared to be common in America, but there were very few cases recorded in this country, from which it was reasonable to infer that our dental surgeons exercised great skill and care.

Mr. T. B. **LAYTON** showed a case of Frontal Sinusitis. The patient had a swelling of the right orbit, with diplopia. No pus was seen in the nasal fossa, but the mucous membrane covering the middle turbinal was œdematous and polypoid. At the operation a cavity the size of a duck's egg was found occupying the site of the frontal and anterior ethmoidal air cells. It contained polypoid masses of mucous membrane, which were scraped away. The patient was progressing, but was not yet well.—Dr. P. **WATSON-WILLIAMS** commented on the slight deformity with such a large cavity. The notes led him to regard the case rather as one of mucocele than sinusitis.

Mr. **NORMAN PATTERSON** and Dr. **NORMAN H. PIKE** showed a patient, a woman aged 45, with a Supraglottic Tumour. For five or six years she had had trouble with her voice, which was weak and toneless; there was also some difficulty in swallowing. She had lost 2 st. in weight.—Mr. W. H. **JEWELL** thought it was a cyst of the epiglottis.—Mr. **STUART-LOW** advocated persistent galvano-cautery puncture.—Mr. **CYRIL HORSFORD** did not think the galvano-cautery would cure the condition.

Dr. **IRWIN MOORE** showed a boy, aged 16, who was the subject of Left Frontal Sinus Suppuration, and on whom the Killian operation was performed. Following a cold, a temperature of 105°F. was developed, with severe pain over the left eye and temporal region. There was no purulent discharge from the nose, but he had a severe hæmorrhage from the left side. On opening the left frontal sinus, which was full of pus, no connexion with the external abscess could be traced. The right frontal sinus was healthy. The rapid recovery the exhibitor attributed to the use of B.I.P.

Mr. W. **DOUGLAS HARMER** showed a baby with a depressed bridge of the nose. Skiagrams showed no evidence of destruction or fracture; there was no rash nor enlargement of spleen, and the Wassermann test in both mother and child was negative. The general view expressed was that despite the negative Wassermann the case was syphilitic, and hyd. cum creta was recommended.

Mr. G. W. **BADGEROW** showed a patient with a laryngeal condition for diagnosis, and suggestions as to treatment. For two years the slightest exertion resulted in difficulty in breathing. Two stones were said to have been lost in weight in three months. No tubercle bacilli were detected in the sputum, and skiagrams showed no signs of aneurysm or neoplasm. The vocal cords were fixed and red, and the ventricular bands œdematous.—Dr. **WATSON-WILLIAMS** did not consider a negative Wassermann as of conclusive value, and suggested anti-syphilitic treatment.

Mr. **L. COLLEDGE** exhibited a case of Laryngeal Tuberculosis in a patient who worked in a very dusty atmosphere. There was a small subglottic swelling below the anterior commissure, and some injection of the vocal cords.—The case was discussed by Mr. **HORSFORD**, Mr. **STUART-LOW**, Mr. **J. F. O'MALLEY**, Dr. **DUNDAS GRANT**, and others.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM: ANNUAL CONGRESS.

THE Annual Congress of this society took place in the rooms of the Royal Society of Medicine on April 29th and 30th and May 1st, under the presidency of Mr. **J. B. STORY**, F.R.C.S.I., whose opening address was reported in THE LANCET of May 15th, p. 1068.

Mr. **JOHN ROWAN** then opened a discussion on the

Non-operative Treatment of Glaucoma,

beginning with the question "Are not some cases of glaucoma better treated without operation, and, if so, what are the indications?" He had had a number of patients one eye of whom had been operated on, the other not. The operations had consisted in both iridectomy and trephining, by various good operators. Several patients had been kept under eserin for months, one for two years, with no deterioration in the eye condition, sometimes with improvement. A typical case he quoted was one with irregular contraction of the fields, plus tension, glaucomatous cupping, pale optic disc, with some atrophic appearance. Eserin was applied and continued, and the condition had remained as when first seen. Operation should be carried out when signs of advance of the disease were evident. In most cases of glaucoma he advised operation, and especially early operation. If he was right in contending that some cases were better without operation, he asked views as to the best indications for this.

Sir **ANDERSON CRITCHETT** agreed that the indication was to operate early, but all who had had experience must acknowledge, with pain and distress, that sometimes, whatever the type of operation carried out, there was a discouraging declension of vision. Some surgeons, indeed, had given up operating for chronic glaucoma.

Mr. **T. HARRISON BUTLER** said his habit was to operate on chronic glaucoma when the tonometer showed that the eye tension was raised and there were signs of functional failure. In these conditions he did not hesitate to operate even when it was the patient's only eye—indeed, the need for it seemed then increased. In some cases the vision after trephining was as good as 6/9. In one or two cases the lens had come forward.

Dr. **G. MACKAY** had noticed that when eserin or other miotic was used over long periods there was a tendency to the formation of pigmentary adhesions between iris and pupil, resulting in diminished transparency of the pupillary area. When examining cases of glaucoma the surgeon should be armed with a tonometer and a blood-pressure recorder. If the blood pressure were high, depletion by venesection should be a precedent to operation; then one class of cases in which there was hesitation about operating would be eliminated.

Mr. **RAYNER D. BATTEN** said that when the eye tension was about plus 1 and the cupping of the disc was in excess of the tension, this could usually be relieved by eserin and general constitutional treatment. In these cases he regarded the cupping of the disc as the disease, the glaucoma as the symptom. And the cupping was progressive, whether the tension was relieved or not. In some cases the cupping would increase the eye tension by interfering with posterior filtration.

Mr. **RICHARDSON CROSS** said that many cases of glaucoma called for operation without delay; in others caution should be exercised about interference. Even a good operation might reduce vision considerably. If central vision was good and there was no great narrowing of the fields, especially towards the fixation point, with an absence of inflammatory symptoms, one could safely rely on miotics. Alteration in the position and course of the vessels he regarded as a grave sign.

Mr. **TREACHER COLLINS** agreed that many cases of chronic glaucoma could be kept in check by the continuous use of eserin. He gave such patients eserin at first, and inspected the condition at frequent intervals. If the symptoms increased in spite of eserin, he advised operation. But additional factors which ought to be considered were the condition of the patient and his age—i.e., his expectation of life; his blood pressure must be taken into account too, for if it were high it was an additional danger in operating. But there was a most disappointing type of case, in which there ensued progressive failure of vision following a good operation.

Mr. **GRAY CLEGG** spoke of cases in which a halo was complained of, and in which the regular use of eserin kept serious developments at bay for a considerable time. But his patients were instructed to come at the least sign of subjective symptoms.

Mr. **R. R. CRUISE** thought the number of cases in which pressure had been overcome by drops must be small compared with those in which the results had been deplorable. He did not think the extraordinary value of the tonometer was at all sufficiently recognised; by its aid the exact progress of a case could be judged in the important matter of the ocular tension, which was the first indication that a case was going wrong.

Dr. **A. HUGH THOMPSON** said that as the ocular tension must vary from time to time, even at different hours in the same day, alteration in the visual fields would be a surer guide to the condition of a case of glaucoma than changes in tension. He had notes of hospital cases in which one eye of a patient had been operated upon, and its fellow had been kept under eserin for more than ten years, with very good results.

Mr. **BISHOP HARMAN** thought that the judgment concerning a case should be based upon the average rate of change going on. He quoted cases in which the regular use of eserin was successful over long periods.

Mr. **A. GREENE** thought it was to the physician one might turn for an explanation and remedy of the cause of glaucoma.

Mr. **BERNARD CRIDLAND** thought that most surgeons were not in favour of simple iridectomy for chronic glaucoma, especially in cases in which the field of vision had contracted and involved the fixation point. Von Graefe had pointed out that simple iridectomy in such a case was inhibitory on the nerve, and the vision rapidly got worse. Operation should be understood to mean decompression. In several cases he had obtained satisfactory fistulisation without touching the iris. He regarded the tonometer as giving the most valuable indication as to the progress of a case of glaucoma.

The **PRESIDENT** said that in cases in which the tension was distinctly high and there was contraction of the field and a central scotoma, he advised operation. The one he had done almost exclusively in recent years was trephining.

Infection after Cataract Operations.

Mr. **HARRISON BUTLER** discussed the probable reasons for the proportion of failures which occurred after cataract operations. There were two types of inflammation, having a different ætiology. The first type, the acute wound infection, the septic hyalitis, panophthalmitis, was most probably due to an infection from without, mostly by the pneumococcus, often derived from a diseased sac or an ethmoiditis. In the second group he thought the cause was mostly an endogenous infection or was due to toxæmia. He supported his views by quoting details of a number of cases. Diabetes he believed to be a fruitful cause of failure. He proceeded to give his experience with juvenile cataracts, uttering the warning that in children who seemed to be in poor condition operation should be deferred until they were strong, and care should be taken not to overlook any septic focus.

Mr. M. S. Mayou said that endogenous infection occurred, but in some cases organisms lay latent in the eye until a temporary lowering of the resistance revived their activity, and suppuration resulted.

Mr. Cruise did not think the services of the bacteriologist were enlisted so often as they should be in these cases. He spoke of cases in which the intestine or urine was contaminated, and an autogenous vaccine proved beneficial.

Diabetes in Relation to Eye Diseases.

On Friday morning Sir Archibald Garrod and Mr. R. Foster Moore opened a discussion on this subject.

Sir Archibald Garrod said the ocular troubles of diabetics were much less obvious to the physician than to the ophthalmic surgeon. He addressed himself chiefly to the subject of diabetic retinitis. In the diabetic form the ocular hæmorrhages were apt to be guttate rather than flame-shaped, the white spots more opaque and sharply circumscribed, more scattered, and less apt to group themselves around the macula. But albuminuria in diabetes did not necessarily point to serious renal damage; the amount of albumin in the renal cases gave no sure clue to the gravity of the kidney lesion. Diabetic retinitis was not to be expected in patients below middle age, but albuminuric retinitis was met with in young patients, even in children. This suggested that the occurrence of retinitis in diabetes was not to be attributed to the accumulation of sugar in the blood nor of the accompanying acetone bodies. A contributory cause must be looked for other than the disorder of carbohydrate and protein metabolism, and if it should be true that the retinitis was associated with cardio-vascular changes this suggested an explanation. Most of the patients in his wards who had developed retinitis with diabetes had shown evidences of renal disease also. He suggested that both diabetic and albuminuric retinitis had high blood pressure and associated arterial changes. More could now be learned from an estimation of the sugar in the blood than from that in the urine. A line should be drawn between acute diabetic cases of early life, which ran a rapidly fatal course, and the mild diabetes of middle or later life, which might persist for many years without grave detriment to health. He considered that the factor determining this was the age of the patients and the tissue changes of advancing years. Account must be taken of the character of the diabetes, as well as the ocular lesions seen. It was generally agreed that diabetic retinitis had not so grave a prognostic import as had the albuminuric. Cataract seemed to be the commonest eye trouble to which diabetics were especially liable. He concluded by a reference to the recent great advances in the treatment of diabetes, remarking that before operating on diabetic patients, ophthalmic surgeons should see that they underwent, for at least a fortnight, treatment by one of the hunger-day methods.

Mr. Foster Moore based his exposition on observations in 62 cases. The chief ocular complications of diabetes were retinitis, cataract, retro-bulbar neuritis, retinal and vitreous hæmorrhages, lipæmia retinalis. Lesser conditions met with included alterations in intraocular tension, alterations of refraction, iritis, debility of accommodation. Retinitis had affected his older patients only; there was only one as young as 39. These subjects usually had arterio-sclerosis also, sugar and albumin in the urine being common in them too. Of 51 cases of diabetes of all ages at St. Bartholomew's Hospital, only 5 had retinitis. Diabetics tended to develop hæmorrhages into the retina or vitreous. The prognosis of retinitis in diabetes was much less grave than in renal retinitis; 60 per cent. of Nettleship's cases lived longer than two years. The term "diabetic cataract" should be restricted to the somewhat rapid opacity of lens seen in young diabetic subjects. It was always bilateral and of a diffuse homogeneous type. Without having objective disease of any part of the eye, a certain number of diabetics developed defective vision. In some this was due to retro-bulbar neuritis. Six of his 62 patients had this. In certain cases of lipæmia a very characteristic ophthalmoscopic picture was seen. Concerning alterations of refraction, observers had noted a variation with the amount of sugar excreted; in most cases a decrease in the sugar output lessened the myopia. He had once seen an acute primary iritis develop in a patient who had diabetes, and in whom no other discoverable cause was present.

Dr. O. Leyton said that in diabetes mellitus the excretion of other substances than sugar was impaired. He had tested the excretory function in a large number of diabetics, and concluded that in most the kidney itself was somewhat changed. Because the blood pressure of a diabetic was not raised, it must not be concluded that the vessels were not changed profoundly. The retinitis he regarded as due to a toxin. He emphasised the great alteration in metabolism produced by alimentary rest.

Dr. Mackay said he had seen cataract develop to ripeness in so short a time as a week. He did not recall any special difficulty in the surgical treatment of cataract in glycosuric patients.

Mr. H. P. Adams said that of the last 31 cases of diabetic retinitis he had seen at the hospital, 22 were in women, 9 in men. Of 159 cases of other vascular troubles in the retina, 96 occurred in women, 63 in men. Of the 31 cases, 13 were 50 to 60 years of age at the onset, 15 between 60 and 70, 3 between 70 and 80. All but 5 of the 21 cases he had been able to trace were now dead. In those who lived longest after the disease was established the duration varied between eight and a half and four years.

Dr. P. J. Cammidge said that records of 350 cases of diabetes which he had seen during the past few years confirmed the conclusions as to the age-incidence of cataract and retinitis, and he thought this could only be explained by the chemical changes taking place in the body at the various ages. Glycosuria was not a disease; he had seen a number of young people who had persistent glycosuria which was very little affected by changes in diet and whose health did not suffer. Two main groups of diabetes were the *pancreatic* and the hepatic. In the latter there was an increased formation of amino-acids, of which tyrosin was one, and there was an increase of fat in the blood, and as the patient got worse this fat-content increased. He considered that diabetic cataract was associated with changes in the amino-acid and fat-content of the blood.

Dr. C. O. Hawthorne spoke of the association of ocular palsies with glycosuria and the fundus changes which occur when sugar is present in the urine. In diabetes mellitus the ocular palsy was probably a peripheral neuritis affecting the terminations of one or other ocular nerve. The cases in which retinitis was present were by no means always those in which glucose was extreme in amount. There were cases in which the discovery of retinitis was accidental; there was no complaint of sight, and it showed the importance of a routine ophthalmoscopic examination.

Mr. R. R. James gave his experience of extraction of cataracts in five young diabetics, with four satisfactory results. The ages of the patients ranged from 22 to 37 years. Cases of the kind were treated by the physicians in the hospital until there was a marked fall in the sugar output. He preferred not to do an iridectomy if it could be avoided.

Mr. P. C. Bardsley spoke of improvement in diabetics by the Allen Graham treatment, and the subsequent clearing up of the retinitis. In the so-called arteriosclerotic retinitis he did not doubt the cause was a toxin.

Mr. E. H. E. Stack spoke of the profound effect produced on a diabetic patient on first coming into hospital by the sudden change in conditions and surroundings, which sometimes brought on rapid coma. Since he had made the change very gradual, there had been a marked diminution of cases of coma.

Mr. J. Burdon-Cooper referred to the finding of tyrosin and cholesterin in the lenses which had been removed from diabetics; he had not tested them for glycogen. His impression was that the acids and ferments which were secreted by the ciliary body were responsible for the hydrolytic change in the lens.

Mr. Gray Clegg summarised his experiences in 1660 cases.

The Preventive Treatment of Ophthalmia Neonatorum.

Members paid a visit on Saturday morning to the Metropolitan Asylums Board special hospital for ophthalmia, Kentish Town, under the guidance of Mr. Mayou.

Dr. Gibbon Fitzgibbon (Master of the Rotunda Hospital, Dublin) opened the debate. From 1898 to 1919 (except for a short interval) there were 92 cases of ophthalmia neonatorum reported as having developed in the maternity department of the lying-in hospital. In that period 38,106 infants were born and left the hospital alive, giving an incidence-rate of 0·24 per cent. Credé's prophylactic method had been in use during this term. The routine at his hospital was, that as soon as the child was born the eyes were wiped clear of all mucus with swabs of boric lotion, without attempting to open the eyes. When the child had been bathed, one or two drops of a 1 per cent. solution of silver nitrate were dropped into each eye. No further treatment was adopted unless active disease appeared. He thought infants acquired the disease by passing through an infected canal. Purulent ophthalmia, he believed, developed after birth from infection of the conjunctiva by a variety of organisms, but the cases due to the gonococcus were the serious ones, and were most resistant to treatment. Many required no more than one application of silver nitrate, which was very efficacious. The pus should be wiped away before applying the remedy, otherwise the latter was liable to be partly decomposed by the pus. An efficient vaccine was a great help; 3 to 5 millions was the maximum dose for an infant.

Mr. Mayou had often found the Meibomian secretion to contain the xerosis bacillus on the third day of life. The greasy condition of the lid margin probably helped to prevent the infected vaginal discharge entering the conjunctival sac, but a more important factor was the quick passage of the child through the vagina. In one case of twins the first child was infected, the second escaped. He uttered a strong warning against the use of nitrate of silver by the inexperienced; 10 per cent. protargol was safer for those not conversant with the work. Local immunity was, he considered, closely bound up with the monocellular exudation occurring after the acute stage of the inflammation began to subside. St. Margaret's Hospital was opened by the Metropolitan Asylums Board in 1918, with 48 beds for women and infants, and there was need for extension. During 1919 146 mothers and 281 babies were admitted. There were eight wards, a theatre for treatment, and a small bacteriological laboratory. It was very necessary to have separate lavatory accommodation for the gonococcal and non-gonococcal cases. Much nursing was required; there was one nurse to every two patients here. Fly-nets to cover the cots were necessary in the summer. Despite notification, there was difficulty in getting patients sufficiently early; too large a proportion already had corneal ulcer when admitted. Silver preparations were not used until the swelling of the lids began to subside; used earlier they aggravated the condition. All preparations were rubbed in with wool mops, not merely laid on. External canthotomy he considered a valuable asset in treatment. Gonococci had been found in the conjunctiva 28 days after the cessation of all discharge. Mothers were instructed to return on the slightest sign of recurrence. Of 382 babies admitted 372 were suffering from ophthalmia neonatorum; of the latter 12 had only one eye affected. Of the 732 eyes 85 had the cornea ulcerated on admission. In 368 it was hazy. Of the 85 ulcerated eyes 28 had already perforated, and 33 perforated after admission; 28 did so on admission.

Dr. Mary Scharlieb had seen a good deal of ophthalmia neonatorum in India. She did not see it in her own practice because she followed out the instructions given at the large Vienna clinic where she was trained. The custom there was to wash the child's face as soon as the head was born, and the same with the hands and arms. As soon as the child's first toilet was finished, the eyes were carefully opened with two fingers, and nitrate of silver solution instilled into them. At that institution the occurrence of ophthalmia neonatorum was a rarity. She emphasised the importance of instructing medical students, midwives, and nurses to look out for trouble; thousands of eyes were lost because heed was not paid to the initial symptoms.

Dr. Elizabeth Macrory spoke of the rules of the Central Midwives Board in regard to the calling in of a medical man when anything unusual was noticed about an infant's eyes, and the notification of having done so. Many such infants were found not to have the disease. The incidence-rate of the condition per 1000 births in London varied between 10·37 in 1919 and 7·25 in 1915. In the practice of midwives the incidence per 1000 was 6·5 in 1916, 6·5 in 1917, 10·75 in 1918, 11·0 in 1919. The later increase might be due to greater care in notification. In 1914, out of 557 cases of inflammation of the eyes in the practice of midwives, 6 showed damage to the cornea; in 1919 out of 840 births in midwives' practice, 15 had corneal damage.

Mr. Sydney Stephenson said more than a hundred years had passed since Benjamin Gibson, of Manchester, laid down the rules whereby ophthalmia might be prevented in babies, and these could scarcely be improved upon at the present day. Credé's method of prophylaxis was the greatest step. In a series of 24,724 births up to 1895 in which Credé's method was carried out, ophthalmia occurred in only 0·65 per cent. He had collected the statistics from 1895, numbering 51,728 births, and giving an incidence-rate of only 0·75 per cent. When mother and child occupied the same bed infection might occur from the lochia. Not every case of ophthalmia was due to the gonococcus. He suggested that nitrate of silver solution of 1 per cent. strength should be used, as it was found to be as effective a protective as the 2 per cent. solution. He reminded the meeting of the simple cleansing of the eyelids at birth practised by Samuel Haig, of Camberwell, in 1879, with the result that he never had a case of ophthalmia neonatorum in his practice.

Dr. Maitland Ramsay gave his experiences of the disease in Glasgow. To achieve success parents must coöperate, but in many instances this was out of the question, owing to the ill-health, carelessness, or ignorance of the mother. Many of the children were kept under observation by the public health authorities until they attained school age. Arthritis, synovitis, glandular enlargement, &c., in the parents of the cases had been uncommon. When ophthalmia neonatorum was associated with syphilis, disastrous results were the rule. They coexisted in about 9 per cent. of the cases treated in the wards. In ordinary cases 6·9 cases were notified by doctors per 1000 births. In 3·5 per cent. of cases the signs were present within 12 hours of birth, in 56 per cent. in from one to four days, in 32 per cent. from the fourth to the eighth day. In 42 per cent. the gonococcus was found. The results of treatment would be better if compulsory removal to hospital could be carried out in every case in which the home surroundings were unsatisfactory.

Dr. J. Wharton briefly summarised the results obtained in Manchester. In 224 cases one or both eyes were lost beyond hope; in 229 cases an ulcer of the cornea had perforated, and he feared that most of these patients would be permanently blind. Since 1897 a special department for the treatment of cases as in-patients had been in operation at the Manchester Royal Eye Hospital, accommodation being provided for both mothers and infants.

Mr. A. L. Whitehead said that in Leeds last year there were 7837 births, of which 4433 were attended by midwives. The total notified cases of ophthalmia neonatorum numbered 105, half of them in midwife-attended cases. In the treatment hourly irrigation was carried out by nurses wearing rubber gloves, the solutions used being boric lotion or potassium permanganate, or 1 in 1000 biniodide of mercury. That was followed by drops of 20 per cent. argyrol every hour. If the cornea could not be well seen, external canthotomy was at once peformed.

Dr. Thomas Stevenson related briefly the routine treatment carried out at St. Paul's Eye Hospital, Liverpool, which was started in 1908.

Dr. C. Killick spoke of the work in Bradford.

Mr. J. B. Lawford criticised the recent omission from the Regulations of the Central Midwives Board of all reference to Credé's method, or any substitute for it.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

Treatment of Tuberculosis.

AT a meeting of this society held on May 5th, a discussion took place on the Treatment of Tuberculosis. The discussion was opened by Sir **ROBERT PHILIP**, who read a paper on the Modern Outlook on the Treatment of Tuberculosis, and by Sir **HENRY GAUVAIN**, who dealt with the Management of Non-Pulmonary Tuberculosis.

Sir Robert Philip contrasted the Hippocratic conception of phthisis with the modern outlook on tuberculosis, and showed how the disease, formerly regarded as always fatal, was one which satisfactorily yielded to treatment, particularly in the early stages. The widespread occurrence of tuberculosis and its natural tendency to cure had been demonstrated by many observers. Amongst the most striking figures were those of Reinhardt of Berne, who, in an extensive series of post-mortem examinations, made on individuals who had died from all varieties of disease, found evidences of tuberculosis in 96 per cent. of cases—32 per cent. showing active and 64 per cent. healed tubercle. It was well recognised that nature cured cases of the disease every day. The essentials of the development of tuberculosis were infection by the tubercle bacillus, the reaction of the tissues to invasion, and later the occurrence of systemic intoxication. The seat of the immediate localisation of the tubercular process was relatively unimportant. There was considerable resemblance between infection with tubercle and infection with syphilis, but tubercle was much more difficult to diagnose with certainty in the early stages. Its incubation period was prolonged and ill-defined; the possibilities of infection were numerous, obscure, and often connected with environment. After local infection with tubercle a sore might develop at the seat of inoculation, and in the guinea-pig after experimental injection with tuberculous material the occurrence of a sore was characteristic. The tubercle bacillus might enter the body by many different channels. The tonsils and posterior nares were important points of entry, and spread was by the lymphatics. A very acute form of lymphatic tuberculosis affected the Senegalese troops in France, and was accompanied by a high mortality. After entry of the bacillus, it might be conveyed to any part of the body, and the local lesion must be regarded as more or less incidental. The ultimate danger was the occurrence of systemic intoxication, which showed its effects most markedly upon the neuro-muscular structures, and which manifested itself early before the development of local physical signs. Cases should be frequently re-surveyed because of the possibility of recurrent manifestations, as even after apparent cure these cannot be excluded with certainty. Tuberculosis was a slow process as a rule, and a long period was required for efficient treatment. The official three months given under the National Health Insurance Act was useless, and was a waste of time and money. There was ample proof that proper treatment was followed by good results. Thirty years ago it was common to see advanced cases of pulmonary tuberculosis for the first time, whereas it was now rare. The progress that had been made was shown by the falling death-rate. In the 30 years from 1870 to 1900 the percentage fall in mortality was 41, and in the succeeding 20 years it was 45. The age of death was also considerably later. There was need for continuous investigation and fuller training of men on modern lines.

Sir **HENRY GAUVAIN** said that the treatment of non-pulmonary tuberculosis had largely been neglected owing to lack of opportunity. The average period of treatment usually accorded to such cases in hospital was one month, whereas it was recognised that cases of pulmonary tuberculosis required about two years. Surgical tuberculosis should no longer be considered as a local condition only. The "soil" was very important, and very largely influenced dissemination of the disease. Conservative treatment—by which was meant the adoption of all measures capable of increasing resistance—should be practised in preference to radical treatment, which was designed to remove the local manifestations. Conservative treatment meant suitable climate, fresh air, personal hygiene, and proper diet. While undergoing treatment proper occupation was necessary, and this should be of a kind to suit the particular class of case. A certain amount of discipline was also a necessity. Cases of surgical tuberculosis could be divided into three classes—those which required absolute rest in the recumbent posture, subacute or chronic cases which needed immobilisation of the affected part to allow of repair and to prevent deformity, and a class where support only was required. Heliotherapy was of value in some cases, which showed reaction to it by pigmentation. Excessive reaction must be avoided, and the patient should gradually be acclimatised to the treatment. Surgical treatment might be necessary for special complications such as tuberculous abscess or sinuses. Spontaneous opening of abscesses should never be allowed, as sinus formation was sure to follow. Instead of incision the part should be immobilised, and the abscess aspirated. By so doing, use was made of nature's barrier in the form of muscular aponeuroses and fasciæ. The good results following treatment along conservative lines were strikingly demonstrated by figures from the special hospital at Alton.

Mr. **JOHN FRASER** agreed with the efficacy of conservative methods in the treatment of surgical tuberculosis. He advocated, however, in addition, early operation in certain classes of cases, especially in early tubercle affecting the cervical glands, and where there was a focus of disease in a bone near a joint. In infants also, early operation might be desirable in some cases where it would be undesirable in older children. Extremely bad social conditions might also make operative interference more necessary.

Professor **G. L. GULLAND** emphasised the importance of goodwill on the part of the patient in making treatment a success.

Dr. **I. STRUTHERS STEWART** dealt with certain aspects of sanatorium treatment which were at present unsatisfactory, and urged the necessity for development and coördination of research.

Sir **DAVID WALLACE** referred particularly to tuberculosis of the genito-urinary tract.

Dr. **LOGAN TURNER** spoke of the frequency of laryngeal tuberculosis and of its influence on the prognosis in cases of phthisis, showing that the mortality was very appreciably increased.

Dr. **FERGUS HEWAT** referred to irritable heart as an important systemic manifestation in certain cases, and also of the necessity for repeated examination of the sputum.

Dr. **GEORGE MACKAY** and Dr. **W. G. SYM** dealt with tuberculous infections of the eye.—Professor **F. M. CAIRD**, Mr. **C. W. CATHCART**, and Dr. **CHALMERS WATSON** also spoke.

MANCHESTER MEDICAL SOCIETY.

Psychotherapy.

A MEETING of this society was held on March 3rd, Professor **R. B. WILD**, the President, being in the chair.

A discussion was introduced by Professor **T. H. PEAR** in a paper on Psychological Analysis.

By psychological analysis, he said, is meant here "any method whereby the nature and relationship of the causes responsible for the patient's (mental) condition are determined, and the condition removed by the rearrangement and readjustment of these causes."[1] The term is wider than psycho-analysis; the latter should be reserved to describe that method which owes its inception to Sigmund Freud. The present discussion attempted to describe the nature and uses of psychological analysis (of which psycho-analysis is one example) in the diagnosis and treatment of what are known as the "functional nervous disorders." Of these disabilities there are two kinds, often, but not always, sharply distinguished from each other: (*a*) conversion hysteria; (*b*) the anxiety neuroses. These two types of disorder may be symptomatic of different kinds of mentality in a patient, and the cure may necessitate different methods of treatment. The thesis here put forward is that though psychological analysis is only one method in psychotherapy; it is (*a*) sometimes the only method which will be ultimately successful; because it is (*b*) the only "radical" method.

The different psychological processes involved in the methods known as suggestion, persuasion, and analysis were then discussed and compared. Reference was made to the view taken of the differences between these disorders by Dr. Bernard Hart. It was pointed out that the meaning attached to the word "suggestion" is usually extremely vague, and that though probably suggestion enters into treatment both by persuasion and analysis, it can be theoretically distinguished from them. The definitions of suggestion and persuasion, given in the article quoted above, were further discussed. In conclusion, it was pointed out that the adoption of all methods of psychotherapy, and in particular of the analytic method, assumed a knowledge of the technique and of the psychological processes underlying them. Emphasis was laid upon the necessity of training medical students in the future to understand and to discriminate between the uses of these various methods.

The following took part in the discussion: Professor **E. S. REYNOLDS**, Dr. **D. E. CORE**, Dr. **S. HERBERT**, Dr. **A. V. STOCKS**, Dr. **S. R. WILSON**.

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[1] Bernard Hart, "The Methods of Psychotherapy." Proc. Roy. Soc. Med., vol. xii. (Section of Psychiatry), pp. 15–34.

Reviews and Notices of Books.

THE PRINCIPLES OF ANATOMY AS SEEN IN THE HAND

By FREDERIC WOOD JONES, D.Sc , M.B., B S. Lond. London; J. and A. Churchill With 2 plates and 123 text figures. 1920. Pp 325. 15s.

ONE of the side results of the war is to be seen in the rediscovery of anatomy for clinical purposes, and it has been recognised by all who have had to do with the needs of the clinician that there are still uncharted and practically unknown details of bodily structure which, when worked out, will be made of value by the bedside This book does not, it may be, open up any of this unexplored territory, but the author employs paths rather out of the way, tracks little used by the crowd, to give the medical reader, and even the routine anatomist, glimpses of the interest lying round them in the sphere of their everyday work. One cannot help regretting that books of this kind—and there are too few of them—do not often find their way into the hands of the ordinary student. The present divorce of anatomical study from its clinical application deprives the average student of what would prove to be a powerful incentive to work, an exceptional teacher will meet the want by providing another interest, more strictly scientific and anatomical, and this volume on the hand should be a valuable adjunct to his efforts The time table of a school curriculum, however, does not leave much time for extraneous reading, and it is probable that the book, for that reason, will afford more pleasure to his teachers than to the student.

If it is true that descriptive human anatomy still presents opportunities for more research, the assertion is even more applicable to the subjects associated with it. The study of human development, for example, is a matter which, when we advance beyond the uninspiring and rather sterile products of German manufacture, will turn out to have much to suggest, not only in anatomical explanations, but in the comprehension of the genesis of many pathological states. Reading his book, one has perhaps the impression that Professor Wood Jones does not lay stress enough on the ontogenetic development of the human hand. For example, an argument perhaps as strong as any other in support of Humphry's views on the morphology of the skeleton of the thumb, which the author adopts, is to be found in the details of formation and attachment of the long flexor tendon of that digit, again, without wishing to disagree with the author's conclusions, it may be pointed out that some suggestion of a postminimus is ontogenetically afforded in the first attachments of the abductor of the little finger, if that muscle is considered to be a marginal member of a dorsal or inter metacarpal group. Similar criticism might be brought forward as argument against unreserved acceptance of some conclusions Professor Wood Jones believes that the hand is a primitive organ, more primitive in men, perhaps, than in some other animals, and he demonstrates his position by his formulæ and comparative observations, but the ontogenetic changes in the hand, even in the development of the apparently simple interossei, surely show that the human hand, so far, at least, as its intrinsic muscles are concerned, is a decided modification of what must have been a primitive condition. It would be a good thing to impress on the student the great value of the details of ontogenetic development

Turning to less contentious matters, it is no ordinary pleasure to one who cares for his subject and its history to come across the names of old time anatomists, extracts from whose half forgotten works are frequently put in with effect by the author Perhaps not the least interesting part of the work, from the student's point of view, will prove to be that which deals with the nervous connexions of the hand, in which many of the disconnected facts of his text books are put before him in ways both interesting and coherent. There are certain small errors that could be removed in a future issue. Thus Fig. 85 is not correct in some of its points, the term "intermediate" would be an improvement on "medial," which has other meanings in the vocabulary of many, and the superficial flexor of the digits is usually designated "sublimis." Professor Wood Jones has, in addition, an unaccountable tendency to give the name Humphray to the late well known Cambridge anatomist and surgeon. But these are very small matters, and it can be said at once, and heartily, that the book is one worth reading, and eminently readable, well got up, with clear and explanatory illustrations, and could with advantage be placed in the hands of every medical student who has attained to the investigation and contemplation of his intermediate subjects.

ROSE AND CARLESS'S MANUAL OF SURGERY.

Tenth edition By ALBERT CARLESS, C.B.E., M.B., M S. Lond , F.R C S. London. Baillière, Tindall, and Cox. 1920 Pp. 1562. 30s.

IN reviewing a new edition of a book so well known as "Rose and Carless's Manual of Surgery" it is unnecessary to notice more than the changes which have been made as compared with previous editions This is the tenth edition, and five years have elapsed since the last Five years of war and years in which the surgical skill of the medical profession was put to the severest tests. That the medical profession was not found wanting has been proclaimed publicly, never in the history of war has more been done for the wounded soldier. The fact that the medical profession was able to cope successfully with the thousands of severely wounded men was due to the sound training received during student life. There is no doubt that this text book has helped to give this training, and one would like Mr. Carless to feel that "the weary hours of study spent over its pages" were worth while.

The additions to the work are mainly in the direction of knowledge gained in the war, with regard to the treatment of infected wounds, of fractures, and in making good the defects following injuries. Another change is the gathering of the X ray pictures into a supplement at the end of the book, instead of dispersing them through the text This may be convenient for production, but of doubtful value to the student

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CHAPITRES CHOISIS DE CHIRURGIE.

By G L REGARD. Paris A Maloine et Fils 1920 Pp 430 Fr.20

M. Regard, a civilian surgeon, served as Médecin Aide Major, and also as Chef d'Équipe Chirurgicale in the French Army. During four years of war he kept careful note of his observations which, together with the results of a considerable amount of experimental work, are now gathered together in the "Chapitres Choisis" The book does not pretend to be a text-book on war surgery, but it contains interesting chapters on many subjects, such as cranial lesions, shock, the treatment of wounds by auto vaccination, gas gangrene, fractures, and the repair of bone Though it does not contain any startling novelty, the work is interesting and unusual, owing to the inclusion in it of the results of experimental work, particularly with reference to shock and the regeneration of bone, which were designed to elucidate the clinical problems.

Though works on war surgery are not now urgently needed, this one is worth perusing, for, as M. Jacob says in the preface, it is "un beau livre."

JOURNALS.

Journal of Industrial Hygiene. London Macmillan and Co 3s 6d monthly, 21s per annum —The pages of this journal have contained in recent numbers articles referring to various branches of the wide field covered by the new science which is springing up relating to occupational preventive and curative medicine and surgery. Review of articles dealing with kindred subjects, although appearing in different numbers, will, we feel, be of more interest to our readers than reference to each issue of the journal. Three articles, for instance, appearing in the issues for February, March, and April may be dealt with in one group; they are contributed by Dr. T. M. Legge, and disclose the author's well known erudition His Lowell Institute lecture on the spirit of work in craft guilds throws an interesting light on the standard of honest work and good material maintained by mediæval craftsmen, and on the organisation which existed to ensure it; trade halls and trade pride then showed a spirit which is conspicuous by its absence from modern trade unionism.

> "Not until the workmen of to-day, in factory and workshop, again recapture this interest in their work, can we expect the same fine results from them. ...... The craftsman asked a good price for honest work made of sound material which would consequently last a long time. He did not try to dodge his neighbour and undersell him. The question of cheapness did not come in. Only occasionally do we read that the municipality had to interfere to regulate the price of goods because of extortion. A regular scale of charges was recognised and the skill of the craftsmen counted for what it was worth."

Dr. Legge passes from these general considerations to inquire how far industrial diseases occurred among the workers; he finds evidence of the existence of ill-health in the fact that "the craft guilds were the only friendly societies, benefit societies, and sick societies, that existed in their times." Nevertheless, although the hours of work which embraced the hours of daylight were long, work by night and on Sundays was forbidden. References in literature are few; Chaucer, it is true, represents the alchemist as suffering from plumbism.

> "And wher my colour was bothe fresh and reed,
> Now is it wan and of a leden hewe;
> Who-so it useth, sore shal he rewe.
> And of my swink yet blered is myn ye."

But the writer turns to Ramazzini for more direct evidence of diseases among craftsmen. This Italian savant at the end of the seventeenth century visited the workshops and saw there mercurial poisoning among goldsmiths, and lead poisoning among potters, painters, and artists; he also describes fibroid phthisis among stonemasons, potters, and miners of metallic ores. The writings of Ramazzini are becoming for industrial hygiene as classical as those of Hippocrates, wherein allusions may be found which can be made to fit nearly every modern instance, but being at times somewhat obscure as to their exact meaning. This famous physician appreciated the value of washing, and counselled all

> "that live by sordid slovenly trades, the frequent shifting of their linen and keeping their body clean; that by that means they may prevent, as far as it is possible, the diseases that flow from filth and nastiness."

And he anticipated more recent social thought with the words—

> "'Tis a sordid profit that is accompanied with the destruction of health."

Dr. Legge carries us forward nearly 150 years from this Italian physician to the English pioneer, Thackrah; he tells something of his life and work and something of the labour world as Thackrah knew it in the first half of last century. The influence of Thackrah upon the thought of his day is set forth; and we are told how he exposed the prevalence of woolsorters' disease and of high morbidity and mortality among those exposed to the inhalation of dust; and how—which marks an important epoch—he founded his deductions on statistical data. Thackrah had a sane judgment, was a keen observer and a clear writer; his work remains worthy of close attention to-day, and we thank Dr. Legge for reminding us of its importance and value.

Three other articles may be referred to together as they deal with aspects of industrial fatigue and unrest. Dr. S. Cobb, in the November number, discusses the psychological aspect and looks upon modern industrialism as "mentally insanitary." The worker has lost creative desire,

> "and the only reason left for labouring is the predatory desire to possess wealth—to get paid off and to do as little work as possible for as large a reward as possible."

Hence results a life of limited happiness and restricted personal development, a life directly conducive to industrial neuropsychosis—a term which may be held to apply to the "gradually accumulating fatigue of the over-driven industrial worker," but which also embraces repressed emotional cravings. Industrial conditions are the cause of industrial unrest, and the duty lies with industry to study and remedy the evil it has brought into existence. The social economist on the one side and the medical practitioner on the other must both be called in to aid, but neither will give of his best until both meet on the common ground of psychiatry.—R. A. Spaeth, in the January issue, following up his excellent exposition of the fatigue problem which appeared in the first number of the journal, deals more particularly with the prevention of industrial fatigue. He appreciates that until the working of the human machine is more accurately understood fatigue prevention cannot become an exact science; yet prevention is the object of the whole study. He says that there is no need to wait before starting on a fatigue-prevention campaign; a great variety of working conditions, often bizarre and unnatural, can be attacked forthwith. Illumination and ventilation are indeed becoming specialised branches of engineering; but other things are neglected, such as, for instance, the provision of seats, which requires careful study. Seats are needed for use during rest pauses, for use at processes usually done standing, and for sedentary occupations; in each case chairs of different type and construction are wanted, suited to the physique of each worker and to the character of the work. Spaeth advocates the introduction of rest pauses, especially at continuous repetitive processes after careful study of the effect produced; and in order to popularise them amongst piece-workers he even suggests payment for the resting time. This suggestion, we may remind our readers, was put forward in this country by the Health of Munition Workers Committee in their Interim Report when dealing with "Incentives to Work." Spaeth next points out that classification of processes and careful selection of workers according to their individual capacities would eliminate much unnecessary fatigue and labour turnover, and he suggests lines on which selection can be made. The value of Martin's spring balance as a physical test is pointed out, and of blood pressure and pulse-frequency as a physiological test, while the use of endurance and intelligence tests are also recommended. This writer looks with disfavour on "motion study" as practised in America.

> 'The aim of motion study and motion elimination has been primarily *output*—i.e., increased production. ...... Whether the fatigue at the end of the day or week is greater under the old or the new method is rarely asked."

The third article appears in the March number from the pens of F. B. and L. M. Gilbreth, who dwell upon the enormous loss to the community of unnecessary fatigue. First, there is the loss in production placed at an astounding figure.

> "There is also the loss in materials that are spoiled and in over-head charges caused by the unnecessarily fatigued worker. Again, there is loss due to absences caused by accident and sickness which are often the indirect results of unnecessary fatigue. Statistics show that the over-tired workers are the ones oftenest injured and oftenest absent. There is also the loss due to the lack of coöperation that comes as a result of the discontent due to over-fatigue, and the resentment due to a belief that the management has not done all it could to provide for the workers' relief from unnecessary fatigue."

The authors discuss the importance of illumination in lessening fatigue, and recommend the free use in factories of white paint on ceilings, on walls, on machinery, and throughout staircases. Plenty of light narrows the pupil of the eye and so increases the depth of focus of the eye; "the greater the depth of the focus, the less the muscles must adjust the convexity of the lens of the eye" during accommodation; thus eye-tiredness is saved. These authors also draw attention to the importance of studying seats; and claim that the average factory chair resembles a coffin, in that "the man who makes it does not require it, the man who buys it does not use it, and the man who uses it has little to say about it." The workers themselves even more than employers have to be educated in the matter of fatigue; educated to wear necessary spectacles, educated to recognise that high heels and pointed shoes are as much bad form in a factory as on the golf-links or tennis-court. Unnecessary fatigue to-day represents unnecessary waste at a time when the world cannot afford waste and requires increased production.

IN the *Bulletin de l'Académie de Médecine* for April 27th M. Arnold Netter returns to the subject of sleeping sickness, and quotes several instances to prove the theory of infection. He concludes his remarks with the following statements:—"Lethargic encephalitis is certainly contagious. The contagion is probably carried by the saliva. Because of the long persistence of the virus in the nervous centres the patient may be liable to give the infection during a long period. There are grave reasons for believing that encephalitis may be transmitted by a convalescent. There is reason for thinking that the malady may be contracted from a patient suffering from an arrested or incipient form or even from a healthy person who has been near a patient. These considerations, some proved and others probable, point to the fact that it is necessary to be cognisant of all established or merely suspected cases. Everyone in contact with these patients should be made aware of the possibility of direct or indirect infection. In the present state of things it would be difficult to enforce the isolation of patients for an indeterminate length of time where the greater number remain single cases without any precautions having been taken."—Two communications were made at the same meeting of the Académie by M. de Lapersonne and M. Achard on the Ocular Symptoms in Sleeping Sickness, and the whole subject was further discussed by Dr. Netter and Professor Widal.—The fourth communication of the meeting was made by Dr. Chauffard, who quoted many cases in proof of his contention that an attack of grippe makes the sufferer immune against further attacks during a certain period. Dr. Netter, in commenting on this communication, pointed out that while grippe influenza might confer immunity, this was not always the case with the many different forms of pseudo-grippe.—Dr. Bérard then read a paper on Operation for Goitre, in which he strongly advocated surgical treatment in such cases, especially before the setting in of complications, of which the most serious was thyroid cancer.

THE LANCET.

LONDON: SATURDAY, MAY 22, 1920.

The Joint Appeal for the Voluntary Hospitals.

We publish to-day an appeal signed by Queen ALEXANDRA, as President of the British Red Cross Society, and by the Duke of CONNAUGHT, as Grand Prior of the Order of St. John of Jerusalem, for the continuance in peace-time of the combined work of the Society and the Order—the Red Cross and the White. We may take it for granted that most of our readers have already seen the appeal, which has been circulated widely; but appended to the appeal there is an account of a survey which has been recently conducted by the two associations to ascertain the financial position and the volume of work done by certain of the voluntary civil hospitals, and a scheme for their monetary assistance and the increase of their activities. The outline of this scheme we were able to present to our readers last week, and now on page 1128 we publish it and the survey practically in full, for they provide the justification of the appeal. They show in brief, though with many details, the pecuniary position of the 550 provincial hospitals under consideration (the hospitals of the metropolis being considered to constitute a special case), the range of their efforts, and the difficulties under which they work, both those that are permanent and those that are aggravated by existing financial stress. In this way the reasons are supplied why the large sum of one million pounds per annum is wanted for the support and development of the institutions, and in what directions the money can be used most wisely. The survey and the scheme are the work of Sir NAPIER BURNETT, and form a valuable public and medical message. Much that is said in them has been said before, but in many directions the circumstances, though well known to medical men, will not be familiar to those who are asked to subscribe. If the documents are digested, donors will understand that their aid is being sought on business grounds, while medical men will be able to answer the now too common assertion that the voluntary hospital system is doomed.

For, as we have stated more than once in our columns lately, there has been in the public mind too great a feeling that the voluntary system has broken down. The numerous appeals in the public press have been supported by statements to this exact effect, and the individual needs of certain institutions have been taken to represent generally prevailing conditions. Hence the public has received an impression of helplessness—a feeling that it would serve no purpose to bolster up a system which was falling into decay. And this feeling has been particularly unfortunate because, at the very time when it was producing its greatest effect on the public, there were proceeding in two directions considered inquiries into all the facts from which it was believed by medical men the contrary view would emerge. Those who were aware of the part that was being played by the voluntary hospitals, and of the immense difficulties that would attend any wholesale suspension of their work in favour of a vast State-supported or rate-supported scheme, felt certain that both the survey of the Joint Council of the Red and White Crosses, and the Report, now imminent, from the Consultative Medical and Allied Council of the Ministry of Health would show that for the health work of the visible future the voluntary hospitals were absolutely essential. That their scope should be enlarged, their finances set in order, and their shares in a grand general plan allotted—these things were fully recognised, but the voluntary hospitals must remain, for the time being, the institutions around which and through which the further developments in the care of national health take place.

The Report of the Consultative Medical Council will appear in all probability next week, when the provincial health service outlined by Sir NAPIER BURNETT will be found to coincide in a valuable manner with the great and inclusive health scheme set up by the Council as the ideal towards which the Ministry of Health might well work. If the well-reasoned appeal of Queen ALEXANDRA and the Duke of CONNAUGHT, supported by Sir NAPIER BURNETT'S account of the survey of the provincial hospital should result in the finding of an annual income of a million to supplement the funds of the provincial hospitals, a practical step will have been taken to carry out the recommendations of the Medical Consultative Council. The hospital survey is only a first instalment, but it indicates in detail where help is urgently required, and we would draw special attention to two features which should appeal to all business men. Under the scheme it is suggested that there should be coöperative buying of hospital commodities, and the British Red Cross Society proposes to use its large storage accommodation in London, where necessary articles could be kept in bulk. This would mean both buying in bulk, and buying on analysis and on sample, and also in most advantageous markets. A second great point in the scheme is the recognition of the value of convalescent hospitals in two directions—early and late. The public and the medical profession know full well the value of the convalescent home, both as making space in hospitals for more acute cases and as giving to those who have passed from that acute stage a more reasonable chance of accelerated health; but the idea that convalescent homes should be established where early cases could be seen and prevented from swelling later the hospital population is, we believe, a new feature in hospital work.

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Left-handedness and Stammering.

In the *Times* Educational Supplement of May 6th some interesting experiments on children are described by Mr. A. E. LEWIS, headmaster of the Lingfield Colony Special Schools. These children had remained stationary for from two to four years and showed an average mental retardation (by the Binet Simon tests) of five or six years. They could not be taught to write, "they could not recognise letters by sound, and they had no idea of number or value." Mr. LEWIS proceeded to teach them to use the left hand in blackboard drawing—at first from the shoulder, and later, when definite progress had begun, from the elbow and wrist, with a smaller scale of movement. All the actions taught were mirror movements—i.e., the *reverse* of the usual right-hand movements. Besides the alphabet, they were trained in the visual memory of pictures and objects, and in their pictorial expression. By the end of the third month over half the class could connect sound with letter, the symbols, of course, being in mirror-writing. They now began to practise (*unreversed*, that is) right-hand movements with the left hand. But this soon resulted in the appearance of a pronounced stammer. The stammer only appeared when the left hand was made to perform movements in the same directions as those normally performed by the right. Left-handed work was therefore at once replaced by practice in ambidexterity. The blackboard was again employed for large-scale drawing from the shoulder, made by the two arms simultaneously, the left carrying out the mirrored movements of the right. The children were also trained in other bi-manual exercises, e.g., in throwing balls and in swinging light clubs. The great fault at first was a want of uniformity on the two sides, the left-sided movements being dominant, and the right subsidiary. Gradually, both hands began to acquire skill and steadiness, the speech defects disappeared, the Binet-Simon tests showed steady mental improvement, and the children could soon write simple letters and syllables from copy and dictation.

In considering the significance of Mr. Lewis's communication, certain other results must be borne in mind:—

(i.) At the British Psychological Society's meeting on May 12th, Mr. Hugh Gordon showed that the percentage of left-handed children is nearly three times as great among the mentally defective as among normal children.

(ii.) At least two previous investigators have independently found that stammering is commoner among left-handed children, when taught to become right-handed writers, than among other groups of children.

(iii.) From some as yet unpublished experiments of Miss Lucy Fildes, Cambridge Research Student to the Board of Control, it appears that children who have been pronounced "mind-blind" can be successfully taught their letters, provided that they are instructed appropriately; under such conditions they can relatively easily learn a strange (e.g., the Greek) alphabet.

(iv.) There is a transfer in the practice effects acquired on one side of the body to the other.

Mr. Lewis supposes that his results are dependent on the "opening up of additional centres in the brain." "Why," he asks, "should we not, by making the child left-sided, render possible the development of other centres on the right side of the brain as well" as those on the left side? But in the light of the additional facts just quoted other and far more likely explanations are possible. In the first place, since left-handedness is, according to Mr. Gordon, especially frequent (18 per cent.) among mental defectives, it is hardly surprising that education of the left hand, even though so long delayed, should in left-handed mentally retarded children have met with motor success. This factor, however, is of relatively slight importance compared with the following. Both in the right-handed and in the left-handed of such children, their backwardness of intellect had become considerably less pronounced than it was when they were first taught to use the right hand. Thanks to Mr. Lewis's enthusiasm, they were trained in left-handed movements by the most modern and improved methods placed in the hands of most expert and interested teachers, whereas their early training with the right hand had probably occurred in a normal school, and was foredoomed to failure. From Miss Fildes's already mentioned observations such early failure appears, in the case of mentally defective children, to be an effective barrier to later progress. It is only when special methods are subsequently employed in the right way that interest can again be awakened and that the enormously powerful suggestions, once acquired, of incompetence and certain failure can be frustrated. Even then the ill-effects may perhaps be perpetuated, as in Mr. Lewis's children, by far slower improvement on the side affected.

Further, the stammering on attempting to reverse previously acquired movements of the left hand appears to be related to that already known to tend to occur when in the left-handed the right hand is trained, in reversed movements, to replace the left. The latter case is not difficult to explain, as it involves a call on the cerebral hemisphere contralateral to that on which the speech centres are being predominantly developed, and so upsets the close anatomical association normally existing between hand and speech movement centres. But, according to Mr. Lewis's results, the learning of reversed movements on the *same* side as that on which the original movements were practised is apt, at all events in mentally defective children, to disturb the speech mechanism. If we can safely eliminate the effects of the previous futile training with the right hand, it would appear that the incoördination produced by learning to reverse acquired movement, whether ipsi- or contra-laterally, affects in some way not yet understood, the coördination of speech among the mentally defective. This is a matter clearly needing and readily capable of further investigation. Meanwhile we may conclude that Mr. Lewis's promising results are more easily explained by the psychological effects of enthusiasm, suggestion, and improved methods of training than by the mere "opening up of additional" motor cortical centres in the opposite hemisphere.

The Tuberculosis Rally.

Last week and next week include at least three important meetings of medical men and women specially interested in tuberculosis, its prevention, and its treatment. And it is well that this should be so, for a certain hopelessness is becoming apparent among the younger generation regarding the efficacy of our present efforts, in face of which it is no use simply to reiterate the claim that hygienic-dietetic treatment would have been a sovran remedy had it been carried out properly. Gallant persons, young enough to look coldly and without personal bias upon the results of hygiene and diet applied as curatives, are willing to concede their value as preventives. But when they are told, by those who think they know, that in sanatoriums greatly enlarged in size and number, with more prolonged treatment and more adequate after-treatment, is to be found the one and only solution of the tuberculosis problem, they are apt to show incredulity. Institutional treatment, ineffective in the spacious days before the war when the land flowed with milk and cod-liver oil, is likely to remain ineffective in the straits and subterfuges of an impoverished generation. The housing question suggests an analogy. In 1914 it seemed capable of solution on 1914 principles; nothing is clear in 1920 except the impracticability of such a solution.

Something of this was doubtless in the minds of the promoters of the Leeds Congress of the Tuberculosis Society on May 13th and 14th, for Dr. H. DE CARLE WOODCOCK, who presided, took as his theme the necessity for research and coördination in the eradication of tuberculosis, leading up to the resolution proposed by Professor BENJAMIN MOORE, that—

> "In the opinion of this Congress a conference should take place between those actively engaged in tuberculosis work and those engaged in research work, to arrange the lines on which future investigation should be conducted and the manner in which records should be kept and collated and the results circulated."

Were all the hundreds of municipal officers at present occupied with the clinical study of tuberculosis imbued—as many of them already are—with the spirit of research, and seized of the best lines on which it should be conducted, the tuberculosis problem would soon yield up some of its closely guarded and ramifying secrets. Investigations conducted for the Medical Research Council, such as those into the incidence of phthisis in relation to occupation, especially munition making, the mortality after sanatorium treatment and BROWNLEE's exhaustive search for a lead from epidemiological data, should form the basic knowledge of the tuberculosis service, and much more might be done to bring research and routine into fruitful partnership. Now that the Research Council *is set free from much of its urgent war work the* claims of the biggest peace time killer and maimer of human lives become very insistent.

Leisure of mind is necessary for research of whatever kind, and it is only a happy and satisfied mind which is leisurely. The assertion of its rightful position has been rather an absorbing task for the youthful tuberculosis service, but, now that the service has arrived, the tuberculosis officer, using the term in a wide sense, is free to develop many points of contact. The meeting, called for May 28th, at which Dr. F. N. KAY MENZIES will preside, is to form a tubercle group within the general society of health officers. The relation of tuberculosis to municipal hygiene and administration is obviously as close as that of measles or venereal control or infant welfare, and we assume that the general health officers, who now largely preponderate in the counsels of the Society of Medical Officers of Health, are prepared to welcome a fuller representation of special departments. The newly formed Society of Superintendents of Tuberculosis Institutions, which held its first general meeting on May 17th, devoted its attention at once to the big question of the ventilation and heating of tuberculosis institutions, the debate being opened by Dr. LEONARD HILL. There is, we have no doubt, enough interest in the subject of tuberculosis and in its votaries to justify several branches of active work. The central link which binds and coordinates is now and will increasingly be—Research.

MINISTRY OF HEALTH: NEW MEDICAL APPOINTMENTS.—In pursuance of the expressed decision of the Minister of Health to enlarge the scope of the medical side of the Ministry, especially in connexion with tuberculosis, general sanitation and epidemiology, venereal disease, international health work, infectious disease and the administrative work of port sanitary authorities, Dr. Addison has made the following additional appointments to the medical staff of the Ministry: Drs. James Fairley, J. Alison Glover, F. W. Higgs, A. A. Jubb, R. Bruce Low (junior), A. T. McWhirter, A. C. Parsons, G. Raffan, A. B. Smallman, P. G. Stock, F. L. Sturdee, E. N. White, D. J. Williamson, W. P. Yetts.

Annotations.

"Ne quid nimis."

THE INAUGURATION OF THE ASSOCIATION OF SURGEONS.

AT the Royal College of Surgeons of England last week Sir John Bland Sutton, as president of the newly inaugurated Association of Surgeons of Great Britain and Ireland, delivered an address in which, with erudition, humour, and biblical simplicity, he explained the need for the new organisation and the problems which it has before it. As our readers will remember, the Association originated with Sir Berkeley Moynihan, who suggested its formation to Sir Rickman Godlee in 1914. War intervened, but its cessation having allowed the suspended activities to be resumed, the Association has come into being, and its rules and programme have been laid down. The members, who are all engaged in the active practice of surgery or surgical research, will meet at stated intervals and at appropriate centres for private debate. The proceedings will later be reported in the *British Journal of Surgery*, which becomes the official organ of the Association, but the absence of reporters from the actual sessions will ensure that unfinished work will not be prematurely published and that the debates will not lose the value that is born of freedom of speech. Sir John Bland Sutton gave the movement a characteristic start by a dinner, which he gave on the evening of Thursday, May 13th, at Claridge's Hotel. The dinner was an act of private hospitality, most hospitably conceived; moreover, as falling under the proceedings of the new Association, it ought, we suppose, to escape publicity. But reference must be made to a short exposition by Sir Berkeley Moynihan of what might be expected from the Association if the spirit in which it had been born continued to infuse its proceedings. He pointed out that the motive for starting the Association, which had received great encouragement from Sir Rickman Godlee and his presidential successor at the Royal College of Surgeons of England, Sir George Makins, was to advance by concerted effort the science and art of surgery in a country where so much of the original work in surgery had been laid down. Surgery, said Sir Berkeley Moynihan, cannot well be a gregarious profession, but in England it is too much concerned with individual and local efforts. It is the intention of the Association to turn the deep currents into broader channels. He concluded that so far as material things—rules and membership—were concerned, the Association was now well fashioned, all that was required being that the ideals which had led to its institution should draw continued vitality from the enthusiasm of the members. We are confident that the new Association will be of the greatest value to progressive surgery.

A NATIONAL COLLECTION OF TYPE CULTURES.

IN our issue of May 15th we published a special article on the proposal of the Medical Research Council to establish a national collection of type cultures. The importance of the subject is worth insisting upon. A complete collection of authentic cultures of bacteria would undoubtedly be of immense value to scientific workers. It would be easy to show how seriously the progress of bacteriology has been handicapped by the absence of such a collection. Consider, for example, the amount of labour that was expended during the war in unravelling the history of Pasteur's *Vibrion septique* and Koch's *B. œdematis maligni*. In the end it was shown that the organisms were identical, but the absence of authentic cultures of the original organisms studied by Koch and Pasteur compelled bacteriologists interested in gas gangrene to expend a great deal of energy and time in settling a point which might have been easily solved under the conditions the Medical Research Council hopes to establish. Some months ago we pointed to the difficulties under which bacteriologists laboured during the war in diagnosing bacillary dysentery. Professor F. W. Andrewes and Dr. A. C. Inman have recently published an account of their work on the Flexner group of dysentery bacilli in which they have isolated five strains of *B. dysenteriæ* (Flexner). These strains, and consequently the corresponding agglutinating sera, were not available during war, though Kruse, in 1912, had isolated the organisms. Such stories of the failure of individualism in science could be told *ad nauseam*. We simply wish to urge that we have now reached the stage at which organised coöperation must come into play. It is, indeed, fortunate that the Medical Research Council has decided to organise this department of our common effort and put it on a sound footing. The Council has done well to secure the services of Dr. J. C. G. Ledingham and his colleagues. But we should like to add that the hearty coöperation of all bacteriologists is essential if we are to enjoy in the future the full advantages of the scheme.

MAN AND DISEASE.

THE tendency, already manifest before the war, to seek vitalistic instead of merely mechanistic interpretations of biological facts, and to insist on the importance of *Bildung* rather than of *Gestalt*, has lately become more marked. At the same time the scientific importance and educative value of the neo-Lamarckian conceptions have been more widely realised, and the relation to medicine of these and other subjects of inquiry, biological and philosophical, has received greater attention. Dr. F. G. Crookshank recently delivered, in the Pathological Theatre at Cambridge, three lectures entitled "Man and Disease," under the auspices of the Chadwick Trust, and took occasion to review some of these recent trends of thought to which we have made allusion, discussing their bearing on modern notions of disease and the resulting schemes for its prevention or alleviation.

In the first lecture of the series the origins of our conceptions of disease and diseases was sketched, and it was pointed out that two popular and professional schools of thought have always existed—the one, chiefly interested in external agencies, actual or suppositious, and now represented by those "realists" (in the scholastic sense) who regard diseases as attacking "entities," to be "stamped out"; and the other, more content with observing what is actually wrong with the sufferer (and how and why), and more inclined to throw the responsibility for ill-health upon those who, for themselves or their future offspring, neglect the personal effort necessary to secure due adjustment and to practise right living. Neither view has absolute value, but the popularity of the former is largely responsible for many alluring "campaigns" against this, that, or the other "disease"; and neglect of the latter tends to involve an increasing personal and racial helplessness.

In the second lecture a plea was entered for a return to the older "functional" and "synthetic" standpoint in respect of biology and that department of biology we call medicine, for materialistic and disintegrative methods of thought have failed to elucidate as completely as was once hoped the problems at issue. A vitalistic conception of disease was declared to be perfectly compatible with the teachings of Roux, the biologist, and Butler, the philosopher. Many converging lines of thought, indeed, appear to warrant us in considering the organic changes in disease as expressions of the disordered "inner" vegetative functions of cells, tissues, and organs rather than as imposed from without, or as Galenical "substances" lying behind the Galenical "shadow" of the symptoms.

In the concluding lecture the community was regarded as an organisation-complex, in the same manner as the "organism" is found to be a complex of lesser units, and they of others still simpler. Epidemiology is then concerned with disorders of health of collectivities and not of mere aggregations of individuals, and is inseparable *in its functions from sociology and the science of* government. Moreover, most forms of epidemic disease are definitely associated with social, economic, and allied conditions, while the greater pestilences may ultimately depend upon factors affecting all forms of animal and vegetable life upon the planet and provoking the harmful activity of the minuter parasites. The true basis of communal health, as of personal health, is to be found in the building up of the sense of responsibility of the "unit" concerned in each case, and in the exercise of effort and endeavour, in the interest of the still greater "complexes" of which each unit is a component; and in this connexion it is impossible to consider the health of mankind without reference to the prevention of international warfare—the greatest mundane cause of disordered health. In conclusion, it was pointed out how very clearly recent lines of thought tend to reinforce the wholesome, vigorous, and broad views and policies of Chadwick and his associates, who refused to entertain the narrower and particularist ideas so popular, in respect of "diseases," during the period now drawing to a close.

Sir Clifford Allbutt, who presided at the last, and Sir G. Sims Woodhead, who took the chair at the second lecture, both spoke of the advantages of taking a broad and comprehensive view of the nature of disease and the many factors involved in its production, as well as of the necessity for emphasising the importance of effort, and the sense of personal and communal responsibility in the prevention of disease.

EXTERMINATING YELLOW FEVER.

IN recent years there has been, without doubt, a considerable reduction in the amount of yellow fever occurring in the regions previously notorious for its ravages and known as endemic centres of the disease. This decrease in the incidence of yellow fever has been due in part to the application of the measures recommended by the American Commission which reported in 1900. One of the chief of these measures was the destruction of the stegomyia mosquito, the proven vector of the infection to man. Among the places which benefited as a result of this preventive action were Habana, Rio de Janeiro, and Panama, all well known at one time as active diffusing centres of yellow fever. Not only did these and other places directly benefit themselves by the anti-stegomyia measures, but they ceased to distribute the infection through shipping to other ports of South and Central America, and in this way caused a diminished incidence of the malady. The Yellow Fever Committee appointed by the Indian Government, to which attention was recently called in our Notes from India, suggests the desirability of keeping in personal touch with the endemic centres of disease elsewhere. It cannot be denied, however, that some other towns than the three named above, formerly endemic centres of yellow-fever, have also shown of late years a remarkable decrease, amounting in some instances to an entire disappearance of the disease, notwithstanding that no action at all had been taken to destroy stegomyiæ, and notwithstanding that these insects continued to multiply in enormous numbers. In such cases the decrease of the malady has been due to what is termed "spontaneous elimination." In the recently issued number of the *Annals of Tropical Medicine and Parasitology*, Vol. XIII., No. 4, Assistant Surgeon-General H. R. Carter, of the U.S. Public Health Service, discusses this subject and offers some explanation of the spontaneous elimination of yellow fever from its former endemic centres. Among the examples he mentions as having been freed from yellow fever are some of the smaller ports of Cuba, also La Guaira and Maracaibo in Venezuela, Cartagena in Columbia, and Corinto in Nicaragua, all of which in the past had an evil reputation as regards the disease. He points out that for the spread of yellow fever in a community three factors are needed—namely: (1) the presence of a person or persons in the early stages of a yellow fever attack—i.e., the carriers of the infection; (2) a sufficient number of active stegomyia, the vectors of the disease; and (3) the presence of susceptible persons. These three factors must be present together at the same time. The stegomyia gets infected by biting the carrier in the early days of his attack, and this mosquito after a time is able to convey yellow fever parasites to the susceptible person—the non-immune—whom it bites. The stegomyia remains infective during the rest of its short life, which Dr. Carter estimates will terminate at about ten days after its infection. If there are no immunes present to be bitten, and thus renew the stock of virus from which fresh stegomyiæ can become infected, the infection must die out. Susceptible persons are therefore necessary for the continuance of yellow fever in a community. Such people must not only be present, but must be present under certain conditions of time and place with relation to stegomyiæ infected from other persons with yellow fever. If in a community there are no susceptible persons fulfilling these conditions, yellow fever will disappear, and if, as Dr. Carter believes, one attack of this disease confers permanent immunity, such a community will have in time no people left susceptible to the malady, unless there is an introduction of non-immunes from without. Yellow fever, therefore, would in this way disappear, and as soon as the already infected mosquitoes died off the yellow fever parasites would disappear and the community would be free of the infection. An immigration of susceptible people, then, is necessary for the continuation of yellow fever in a community; if this immigration fails or fails to fulfil certain conditions the disease disappears. This Dr. Carter terms "the elimination of yellow fever by failure of the human host." The towns which have been freed from the malady in this way are generally small or of moderate size, out of the way of commerce, and receiving little immigration of susceptible persons. It has been noticed that other towns have suffered less and less from yellow fever as their prosperity declined and the arrivals of traders and others decreased. The decline of the sugar industry in some of the West Indian islands was followed by a great diminution of yellow fever. The withdrawal of European garrisons and fleets from the West Indies and Caribbean Sea led to a great decrease in the amount of yellow fever occurring in these regions. Even the Great War has helped by stopping European immigration to South and Central America; and the consequent commercial depression by causing lessened travel has also contributed towards this end by cutting off the supply of susceptible persons. Yellow fever, therefore, in recent years has been greatly reduced, first of all by the application of the scientific method of stegomyia destruction, especially in the larger towns, and secondly by "spontaneous elimination by failure of the human host" in the smaller and more remote endemic centres. There are, of course, other agencies under modern conditions also at work tending to diminish the spread of yellow fever. In conclusion, Dr. Carter believes that yellow fever may in time be exterminated altogether. Many of the higher forms of life, he says, have permanently disappeared from the earth, some of them even in our own times, and there is no reason why concerted attempts should not be made, perhaps, on an international basis, to exterminate a micro-organism such as that of yellow fever, which is pathogenic to man and which in the past has taken a heavy toll of human life. We hope that Dr. Carter's contentions will receive the attention of the International Health Bureau.

INTERNATIONAL PUBLIC HEALTH NURSING.

ORGANISED public health is the greatest immediate need of the Old World, and the organisers are constantly met with the difficulty of finding trained personnel. One of the first objectives of the League of Red Cross Societies has therefore been to seek out in all countries young women to be trained both in sick nursing and in public health work, to assist them in obtaining the necessary training, and to return them to their own countries as pioneers in public health work. Eventually the League advocates the establishment of a model training school or schools for public health nursing; but, pending this, it has been decided to make use of existing facilities, and King's College for Women, London, has been selected as the institution at which training will be given in public health nursing to the holders of the League's scholarships. The course of training will be conducted in the Household and Social Science Department of the College, beginning with the academic year 1920–21. Acting on the suggestion of Miss Alice Fitzgerald, chief of the League's Department of Nursing, and formerly of the Johns Hopkins Hospital, Baltimore, ten scholarships have been established, each of the value of $1000, to cover tuition and living expenses through the full college term of 10 months. Travelling expenses to and from London will be paid to the holders of the scholarships. Additional scholarships are to be established by National Red Cross Societies, and it is hoped that the first group of nurses to take the London training will number at least 20. The students will live in one of the residences attached to King's College under the supervision of Miss Gertrude Cowlin, assistant chief of the Department of

Nursing of the League of Red Cross Societies, and formerly organising secretary of the College of Nursing. The course of training will include physiology, bacteriology, household science, hygiene, and elementary social economics. The practical course will cover child welfare school clinics, tuberculosis, rural work, and district nursing. The students will also have the opportunity of visiting centres of social work. It is felt by the League that a year's contact with representatives of 20 other nations should help the pupils to a cosmopolitan outlook. After their return to their own countries, at the end of the course, the nurses will be expected to maintain communication with the League of Red Cross Societies, and a plan is under consideration for travelling field secretaries to assist them in becoming pioneers of public health nursing.

OPHTHALMOLOGY IN THE FINAL PASS EXAMINATION.

THE address of the president of the Ophthalmological Society, reported in our issue of May 15th, should go some way towards convincing the General Medical Council of the value of the reform for which he pleaded, namely, that ophthalmology should be included as a necessary part of the final pass examination and that the examination in this subject should be conducted by ophthalmic surgeons. To be effective it must include the clinical examination of cases both external and ophthalmoscopic. This does not mean that it is considered necessary for the general practitioner to have the detailed knowledge of the subject which is expected of the specialist, but rather that he should be able to recognise promptly such injuries and diseases of the eye as he is likely to meet with in general practice, and for which prompt treatment is essential, and in the second place, that he should be sufficiently at home with the ophthalmoscope to identify those conditions of the fundus which commonly constitute symptoms of general disease, some of these being essential to diagnosis. To the objection that such an examination would overload the curriculum, Mr. Story put forward his own experience as an examiner for over 30 years in Ireland, where the clinical examination that he advocates has been in force with excellent results. To the other objection that if an examination in ophthalmology is instituted other special branches of surgery will soon claim a similar privilege, he replied by pointing out that the importance of ocular signs and symptoms in serious constitutional diseases is much greater than can be assigned to any of the other organs usually taken up as specialties.

THE METABOLISM AND EXCRETION OF QUININE.

THE War Office has reprinted, in separate form, that portion of its recently-issued volume of "Observations on Malaria" which deals with the excretion of quinine. This subject is reported on by Dr. M. Nierenstein, lecturer on bio-chemistry in the University of Bristol, who was working during the war under Sir Ronald Ross at the malaria laboratory of the 4th London General Hospital. Dr. Nierenstein's first task was to compare the reliability of the various tests for quinine in urine. The most delicate of the qualitative methods is, he finds, that devised in 1853 by Herapath, of Bristol, and recently elaborated by Ramsden and Lipkin, of Liverpool. A number of quantitative methods was also tested critically, and that of Barratt and Yorke selected as being most reliable. Using this technique, Dr. Nierenstein made 1668 estimations of the excretion of quinine, and it is on this basis that he draws his conclusions. From these it appears that only about half the quinine administered to the human subject it excreted as such in the urine. The remainder, is seems, is metabolised, and two disintegration products, quitinine and hæmoquinic acid, were found in the urine. This latter was almost constantly present in the urine of blackwater fever cases, and in much larger quantities than in the urine of ordinary malarial patients. It was found that variation in the dosage from 20 to 70 gr. daily produced little or no variation in the proportion of quinine excreted unchanged, but that a dosage of over 30 gr. per diem, which raised the unchanged quinine in the urine above 11 gr. per litre, was apt to cause albuminuria. Variations in the preparations used and in the methods of administration made no great difference to the proportion excreted unchanged. Dr. Nierenstein's general statements are supported by a great wealth of detail in his report, which deserves close study.

PLEURAL EFFUSION WITH DEPRESSION OF THE DIAPHRAGM PRODUCING AN ABDOMINAL TUMOUR.

IN the *American Journal of the Medical Sciences* for March Dr. David Riesman has described a very rare result of pleural effusion—depression of the diaphragm producing an abdominal tumour. He first encountered this condition at a necropsy. On opening the abdomen he found in the left upper quadrant a large, smooth, tense tumour, which proved to be a bag made by the diaphragm turned inside out and filled with pleural fluid. Subsequently he has seen the condition twice, in both cases clinically.

In one case the patient, a widow, aged 77 years, came under observation in April, 1918. For years she had suffered from diabetes mellitus and chronic nephritis with moderate hypertension. There were diabetic cataract and retinal hæmorrhages. The heart was slightly enlarged, there was a soft systolic murmur, and the legs were somewhat œdematous. The urine contained sugar up to 3·2 per cent., and albumin from traces up to 2·8 g. per litre. The quantity was usually about 1500 c.cm. and the sp. gr. varied from 1007 to 1013. Unlike most cases of coexisting nephritis and diabetes, the sugar did not vary in inverse proportion to the albumin. Under treatment she improved. In June, 1919, she was seized with acute indigestion, characterised by abdominal pain radiating to the back, nausea, vomiting, and slight diarrhœa. Within a few days she began to suffer from dyspnœa. On examination the lips were somewhat cyanosed and the pulse rapid, but there was no fever. The upper left half of the abdomen was occupied by a tense rounded, slightly uneven, somewhat tender mass ; it extended forward to the mid-clavicular line and downwards to the level of the umbilicus. The left chest was visibly distended and enlarged. The percussion note was flat over the whole left chest. No heart sounds could be heard there ; the apex beat was just within the right nipple line in the fifth interspace. Bronchial breathing and bronchophony were heard over the left chest. Dr. Riesman concluded that the abdominal tumour was the inverted diaphragm containing pleural fluid ; this was confirmed by paracentesis. After slowly drawing off 5 pints of fluid, the tumour could no longer be felt. Fearing pulmonary œdema, Dr. Riesman remained with the patient. In the first half hour she was comfortable and greatly relieved. Then suddenly the lungs filled with fluid, loud bubbling râles could be heard everywhere, and the breathing became rattling and terribly laboured. A violent cough, which brought up little fluid, added to the distress. The face became purple, the skin cold and clammy, and death seemed imminent. A hypodermic injection of morphine and atropine had no effect. Dry cups were applied to the back and, as if by magic, every râle disappeared. After a proper interval the cups were removed and the œdema immediately returned, but it was slight and caused little distress. From that time improvement was rapid. When seen again in the latter part of July a considerable accumulation of fluid had taken place, but the abdominal tumour was smaller than before. Paracentesis was again performed, and the tumour vanished. She was in good condition at the time of the report.

In most of the text-books depression of the diaphragm as a result of pleural effusion is not mentioned. However, Wilson Fox, in his monumental work, says: "When the effusion is large the diaphragm may pass below the ribs, and may there in some cases be felt as a tumour." The condition is a mechanical result of great intrapleural pressure. The tumour is important in the differential diagnosis of abdominal masses. If the chest condition be overlooked or not correlated with the tumour error may arise. The tumour has a peculiar bulky feel, is tender, does not move with respiration, has the shape neither of the spleen nor kidney, and appears to have a deep attachment. Apart from paracentesis, X ray examination is probably the best means of diagnosis. The albuminous expectoration following paracentesis Dr. Riesman has ascribed to "congestion by recoil." It is very alarming and sometimes fatal. He has usually found that a hypodermic injection of morphine and atropine gives speedy relief, but, as in the case related, it may fail. The remarkable results of dry cupping must be due to some reflex nervous influence. Dr. Riesman believes dry cupping to be a good measure in all forms of acute pulmonary œdema, whether due to tapping or other causes.

HOURS OF LABOUR.

EVERY social student will recall the struggles of Oastler, Owen, Shaftesbury, and Cobbett in the first half of the nineteenth century which culminated in the Ten Hours Act, and the way in which that Act had to be strengthened in order to prevent the "relay system," under which the same person was illegally employed throughout two succeeding shifts. His thoughts will receive a sudden jolt when he notes that the Home Secretary has recently introduced a Bill permitting women and young persons to be employed in eight-hour shifts between 6 A.M. and 10 P.M. The reformers of the nineteenth century would consider this permission tantamount to encouraging the relay system again; but times have changed, and what was necessary to protect industry against itself in 1850 has now become an obsolete statute standing in the way of further advance. The Ten Hours Act, passed to ensure that the human machine was not worked more than ten hours a day, limited the working of the inanimate machine to the same period; but modern investigations have so established the economic folly of over-working humanity that the inanimate machine can be safely allowed to work for longer hours. This alteration in the law may pass unnoted, yet it marks a change of the utmost importance to the productivity of industry and to the health of the working-classes. It is, in effect, an Eight Hour Act; for although it applies only to women and young persons, many industries so depend on the work of these protected persons that their hours decide the hours of adult male labour. The Ten Hour Act in itself was an instance of the man gaining advantages behind the woman; and even if legislation was not under consideration for establishing a general eight-hour day, the statute now under contemplation would go far to establish this limit for industrial work. Lord Leverhulme has advanced the proposition that the object to-day should be, so far as hours of labour are concerned, to sweat the machine, not the worker. Machines, he points out, should be worked to their utmost while they are still of the latest pattern, and then give way to improvements. Otherwise industry becomes clogged with effete plant, and is less productive. His proposal for six-hour shifts cannot be fitted into the new statute; nevertheless, it marks an important advance. When full advantage is taken of the permission it gives, over-fatigue, and what arises from it, social unrest and ill-being, should be diminished among the industrial classes.

THE next session of the General Medical Council will commence at 2 P.M. on Tuesday, June 1st, when the President, Sir Donald MacAlister, will take the chair and give an address.

Mr. Norman G. Bennett has been appointed a member of the General Medical Council, on the nomination of the Privy Council, in succession to Sir Charles S. Tomes, whose term of office came to an end on May 20th.

A LIMITED number of commissions in the Regular Royal Army Medical Corps are being offered to officers who are at present serving in the army or who have held commissioned rank during the war. The conditions of service will be found fully stated on p. 1137.

WE remind our readers of the post-graduate course of study in the principles of balneology to be held at Bath between June 7th and 19th. This is the first serious attempt in this country to make extended use for teaching purposes of all the resources of a famous spa. Accommodation will be arranged for those attending, the number being strictly limited. The fee for the whole course is £5 5s., and application for tickets should be made to the Secretary of the Fellowship of Medicine, 1, Wimpole-street, London, W. 1.

THE dinner in celebration of the services of the Royal Army Medical Corps and the eminent civilians attached to it during the recent war will take place at the Connaught Rooms on Tuesday, June 8th. Lieutenant-General Sir Alfred Keogh, G.C.B., G.C.V.O., will be the chief guest, and among those who have accepted invitations to be present as Commanders of Armies are Field-Marshal Viscount French, Field-Marshal Earl Haig, Generals Lord Horne, Lord Rawlinson, Sir Ian Hamilton, and Sir Archibald Murray. The Right Hon. Winston Churchill and other members of the Army Council will be present. Some 40 hosts will preside at the different tables, the committee being Lord Derby, Lord Midleton, Lord Edmund Talbot, General Seely, Right Hon. H. J. Tennant, and Colonel Sir Edward Ward, to whom all communications should be addressed at 10, Grosvenor-street, London, W. 1.

A RED CROSS APPEAL.

THE British Red Cross Society and the Order of St. John of Jerusalem in England have issued through their joint council, of which Sir Arthur Stanley is the chairman, the following forcible appeal to the public to maintain for purposes of peace the magnificent support which was forthcoming during the war. The appeal, which is signed by H.M. Queen Alexandra as President of the British Red Cross Society, and the Duke of Connaught as Grand Prior of the Order of St. John, runs as follows:—

On the outbreak of war in 1914 there were two corporations authorised to engage in relief work among the sick and wounded men of His Majesty's Forces—viz., the British Red Cross Society and the Order of St. John of Jerusalem. These two bodies worked independently, but quickly came to the conclusion that everything must be done to coördinate their activities and to avoid waste and overlapping, and that to this end it was expedient to "pool" their funds and their efforts. A Joint War Committee was formed, together with a Joint Finance Committee, and it is under these two Committees that the voluntary work of relieving the sufferings of the sick and wounded men of His Majesty's Forces has been carried out during the past six years.

During that period a vast number of workers, both men and women, throughout the whole Empire, gave unwearying and devoted service to the cause, and it was natural that, when peace came, there should be a general feeling that an organisation such as this, founded on the voluntary efforts of those whose object was the relief of suffering and distress, should not be disbanded or allowed to disappear.

Moreover, there is still the aftermath of war to be dealt with. The Joint War Committee has been engaged since the armistice in carrying on certain of its war departments which deal with work that must continue for some time yet to come, such as the care of the sick and wounded men of His Majesty's Forces, whether still on the active list or demobilised; such care as may still be necessary for those who have been prisoners of war; assistance to orthopædic clinics and curative posts for the treatment of pensioners; home service ambulance organisation; Red Cross and St. John war and peace library.

There are also other branches of work which can usefully be undertaken in time of peace by the Order of St. John and the British Red Cross Society, such as the care of those suffering from tuberculosis, having regard in the first place to sailors and soldiers, whether they have contracted the disease on active service or not; assistance, financial and otherwise, to the voluntary civil hospitals, in view of the strain put upon these hospitals by the war; work parties to provide the necessary garments, &c., for hospitals and health institutions; child welfare work; assistance where required in all branches of nursing, health and welfare work, ancillary to the Ministry of Health.

The two corporations were anxious that these various branches of work should be carried on, and felt that for this purpose a governing body should be set up in place of the Joint War Committee, which had been created only for work in time of war. They have, therefore, by a formal agreement, established a Joint Council, on which both bodies have equal representation. This Council possesses under the old Charter of the Order of St. John and the newly extended Charter of the British Red Cross Society full power to act in all matters connected with "the improvement of health, the prevention of disease, and the mitigation of suffering throughout the world." (Extract from Article XXV. of the Covenant of the League of Nations.)

The Joint Council has now begun its work, and makes an earnest appeal to the public for a continuance of that great and munificent support which carried the Joint War Committee through the years of war. During those years the sick and wounded men of His Majesty's Forces learnt to look upon the Red Cross as an emblem, not only of help and comfort, but also of the devotion of the British people for the men who were fighting in Britain's cause. It is our earnest hope that those who, in peace time, are in suffering or distress, will learn in the same way to look to the White Cross of St. John and the Red Cross for comfort and relief, and will feel, when helped by the Order of St. John and the British Red Cross Society, that they are not receiving anything in the nature of charity, but only the just and proper tribute from those who are enjoying health and strength to their fellow men and women who are less fortunate than themselves.

For some branches of the work mentioned above—those in the first category—the Joint War Committee will continue to provide the necessary funds, either wholly or in part, for some time to come, but for all the other work of the Joint Council money is needed at once.

The greater the support that we receive from the public the better the work that we can do, and the more promptly we receive that support the sooner we can start our mission of healing and comfort. That is why we put forward this appeal, confident in the strength of our cause and in the generosity of the public that has never failed us yet.

Donations and subscriptions should be sent to the Joint Council Finance Committee, 19, Berkeley-street, London, W.1. Cheques should be crossed "Lloyds Bank, Ltd."

ALEXANDRA,
President of the British Red Cross Society.
ARTHUR,
Grand Prior of the Order of St. John of Jerusalem in England.

May 15th, 1920.

GENERAL SURVEY OF THE HOSPITAL SITUATION THROUGHOUT ENGLAND AND WALES.

By Sir NAPIER BURNETT, K.B.E., M.D.

Sir Arthur Stanley, chairman of the British Red Cross Society, at a meeting of the secretaries and house governors of the provincial hospitals, held at St. Thomas's Hospital on Jan. 23rd, 1920, intimated that if the voluntary hospitals would accept the assistance of the Joint Council of the Red Cross Society and the Order of St. John, then such work *would be embodied in the peace programme of the two* associations working jointly as they did during the war. The hospitals represented at the meeting gladly accepted this offer of the Red Cross, and thereafter it was decided to ascertain to what extent the hospitals were in difficulty, and this has been done by means of a survey. The object of the survey was twofold—namely, to show (*a*) something of the volume of work done by each individual hospital during the year 1919; and (*b*) the present financial position. The data set out below have been supplied either direct by the hospital secretary or abstracted from the hospital annual report.

THE SITUATION OF 550 PROVINCIAL HOSPITALS.

Throughout the 55 counties (England and Wales) 550 hospitals have been dealt with up to date, approximately 78 per cent. of the voluntary civil hospitals, omitting those dealing exclusively with tuberculosis. The voluntary hospitals in London are not included in the present survey, as it was felt that for many years the London hospitals have enjoyed the benefit of the great collecting organisations, such as King Edward's Hospital Fund, the Hospital Sunday Fund, the Hospital Saturday Fund, and the League of Mercy. The provincial hospitals have had no such central funds, and this fact suggested priority of assistance being given to these institutions.

TABULAR STATEMENT OF THE SURVEY.

A.—*Volume of Work Done.*

Of the 550 hospitals reviewed—
507 hospitals have 29,821 available beds.
498 hospitals treated 350,459 in-patients during the year.
376 hospitals treated 1,600,869 out-patients during the year.
296 hospitals with 23,621 beds had a daily average occupation of 18,705·36 beds (= 79 per cent.).
374 hospitals show 219,196 surgical operations during the year.
68 hospitals give figures showing the nature of cases treated—namely, medical cases, 7034 (21% of total); surgical cases, 26,466 (79% of total).

B.—*Financial Position.*

543 hospitals show ordinary income £2,835,269.
543 hospitals show ordinary expenditure £3,310,896.
Excess of expenditure over income, £475,627.

Some details of ordinary income:—
316 hospitals show as workmen's contributions, direct or through Saturday Fund, £451,426 (= 15·92% of ordinary income of 543 hospitals).
464 hospitals show as patients' contributions, £214,570 (= 7·56% of ordinary income of 543 hospitals).
248 hospitals show as Public Services (e.g., War Office, Pensions Ministry, Borough or County Councils), £517,890 (= 18·91% of ordinary income of 543 hospitals).
512 hospitals show as interest from investments, £423,044 (= 14·92% of ordinary income of 543 hospitals).
The total from these four sources, £1,606,930 (= 56·67% of ordinary income of 543 hospitals).

Of these 543 hospital accounts analysed—
449 hospitals show invested capital as £9,585,865, yielding annual interest £340,529.
66 hospitals show £33,706 as annual interest, but show no capital.
28 hospitals show no capital or interest.

DEPRECIATION OF INVESTED FUNDS.

9 hospitals show invested capital as	£306,956
Market value at end of 1919 being	£248,199
Depreciation in value	£58,757

This last item is shown merely in answer to a criticism that the hospitals in their present *financial* difficulty should realise some of their capital. Some few hospitals have actually been obliged to take this course, but only very few. The figures indicate that the hospitals cannot afford to unload their stock in the present state of the market.

In order to show the situation more clearly I have divided the hospitals into the following groups, namely —

Group A —Large General Hospitals of 100 beds or over
B —Medium-sized Hospitals of from 30 to 100 beds
C —Small or Cottage Hospitals of under 30 beds
D —Special Hospitals
F —Out-patient Clinics

Group	No of hospitals	No of beds	Average No of beds to each hospital	Total ordinary income	Total ordinary expend	Excess of expend over income	Excess of income over expend
A	82	15 958	194 60	£1 615 291	£1 970 976	£355 685	—
B	87	4 724	54 29	£436 331	£476 049	£39 718	—
C	240	3 355	13 97	£289 489	£276 855	—	£12 634
D	98	5 784	59 02	£458 309	£540 227	£81 918	—
F	Dispensaries 43	New out-patients 165 159		£51 838	£50 598	—	£1 240

COMMENTS ON THE SURVEY FIGURES

The figures brought out in the survey may be regarded as dealing with 'the facts' of the situation, and are issued as a first instalment dealing with some 550 hospitals—or approximately 78 per cent of all provincial hospitals—a sufficiently broad basis to draw conclusions from Further details will be published at a later date showing more particularly the voluntary hospitals, with their figures in each individual county in reference to population &c

Two additional figures, not shown in the above statement were taken out, namely —(*a*) the average length of stay in hospital of each in patient, (*b*) the average annual cost per occupied bed

The methods employed by some of the hospitals in ascertaining these data varied so much that I had no option but to discard the results For example, some hospitals included their "tonsil and adenoid' cases—usually in hospital only 24 hours—while other hospitals excluded these in arriving at their "average length of stay" figure Again, in regard to ' cost per occupied bed" I found that some hospitals included the cost of out patients, while others deducted such expenditure so that I concluded the figures for purposes of comparison, were unreliable

The volume of work done at the 550 hospitals reviewed shows that approximately 2 million patients received treatment during the year The figure shown for out patients indicates individual cases, and is not merely a record of "attendances"

During the war, owing to depleted clerical staff many of the hospitals allowed certain details to lapse from their records Hence it is that only 296 of the 550 hospitals give the "average daily occupation of beds", but where it has been given it reveals the high occupation of 79 per cent This is undoubtedly high when taken for the whole year, during part of which as a rule, some ward or wards are closed for cleaning or disinfection purposes

A further testimony of the enormous volume of work done in these hospitals is seen in the figure of 219 196 surgical operations during the year These included both major and minor operations where an anæsthetic has been employed but do not include dental operations

One other interesting figure is shown under the ratio of medical to surgical cases treated It is true that only some 68 hospitals give these figures, but they are sufficiently numerous as to indicate a present-day tendency towards catering for surgical work

Turning to the financial position, it will be seen that the excess of expenditure over income for the hospitals under review amounts to £475 627 Approximately 75 per cent of this deficit belongs to the large general hospitals of 100 beds or over, of which there are 82 in number It would appear from these figures that big hospitals situate in the populous industrial centres are supplying a much larger service than is recognised by the local communities The classification of the hospitals reviewed into groups according to their number of beds brings out more clearly the financial position

The difficulties at present being experienced by the voluntary hospitals may be grouped under the three headings—namely, (*a*) need of increased financial support (*b*) need of increased bed accommodation, (*c*) need of increased supply of nurses

Appended hereto is a suggested scheme for assisting the voluntary civil hospitals

OUTLINE OF SCHEME FOR ASSISTING THE VOLUNTARY CIVIL HOSPITALS

1 Hospital survey, to consist of—

(*a*) Data showing the volume of work done during the year 1919 in each individual hospital

(*b*) The financial statement of each hospital showing ordinary income and expenditure invested funds annual cost per bed &c

(*c*) Showing by maps the hospital situation in each county in ratio of beds to population

2 Public appeal for funds £1 000 000 per annum being aimed at The money, it is hoped, will be raised from the following sources, viz —

(*a*) Public appeal through the press &c for individual subscriptions

(*b*) Public appeal and personal canvass of business firms pointing out to commercial organisations the point of view that by setting aside each year a certain sum of money for distribution amongst charities may be regarded as a reasonable tax on industry and that by handing such sums to the Red Cross organisation for distribution they may be assured that the money will be distributed where it is most needed or if ear marked for certain districts it will be so distributed and thus relieve the business man of the uncertainty of knowing who is in most need of his support

(*c*) Public appeal through the great national collecting agency known during the war as Our Day organisation

The allocation of grants to hospitals will be made by a Grants Committee, on the recommendation of the Director of Hospital Services after investigation of such matters as—

(*a*) The efficiency of the hospital administration
(*b*) How far the hospital is meeting the needs of the locality
(*c*) As to its buying on scientific lines prices paid &c
(*d*) As to adequate payment of its nursing staff always provided that the standard of training is of the highest

3 Coöperative buying of hospital commodities

4 Coordinating the hospitals into groups in counties or other areas In every county or district there is the large central hospital which may be called the "key" hospital and it is hoped to arrange with the smaller county and cottage hospitals to become coordinated with the key hospital by having a working arrangement as to—

(*a*) Transport of patients

(*b*) The central hospital to receive severe cases from the smaller hospitals and return of slighter cases to the cottage hospitals and convalescent homes

(*c*) All pathological and bacteriological work of each group of hospitals to be arranged for at the central hospital No hospital would receive a grant from the Joint Council unless some such arrangements for the investigation of disease existed

5 Circulation of statistical and other hospital information from the Central Bureau

6 Convalescent hospitals —To give every encouragement for the establishment of convalescent hospitals in the country for the dual purpose of pre hospital and post hospital care

7 Meetings to be arranged in each county with the object of disseminating knowledge and stimulating interest in all matters pertaining to public health

By means of some such scheme as that outlined above, it is hoped to assist in the development of a national coördinated hospital system for the cure and prevention of disease

May 1920

SMALL POX AND ITS PREVENTION

THE ever present danger of small pox is being brought home to us by the outbreak which has occurred in the Glasgow district and which threatens to become epidemic in Scotland The first case sickened towards the end of February, and by May 12th 130 cases had been notified in Glasgow itself, 9 other cases in the west and 2 in the east of Scotland New cases are now occurring in Glasgow at the rate of about 10 a day A reference to the Urban Vital Statistics on p 1134 shows nine deaths in the week ended May 15th The type of disease is severe, with marked fatality among the unvaccinated, and, it may be assumed, with infectivity broadly corresponding to the severity The Scottish Board of Health fears a wide dissemination of the disease owing to the passenger traffic between Glasgow and other parts of the country which will be greatly enhanced during the coming holiday months The fact that a high percentage of the population under 13 years of age is unvaccinated (it was in 1907 that the conscientious objection clause was incorporated in the Vaccination Acts) is causing the Board grave anxiety

Under these circumstances it is a matter for congratulation that the problem of small pox in many of its aspects has recently been studied afresh by experts such as Dr J C McVail and Colonel W G King, I M S, whose conclusions are available for our help in present emergency In his paper on "Small pox and its Prevention," read before the Society of Tropical Medicine and Hygiene on Feb 20th and now reprinted, Colonel

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* This scheme and a scheme for other work were set out in the peace programme of the Joint Council of British Red Cross and Order of St John

King draws attention to the widespread distribution of the disease throughout the world in both temperate and tropical climates. He further brings out in connexion with the pandemicity of small-pox the probability, hitherto but little recognised, of the existence of types and strains of differing virulence in various parts of the world. The changing virulence in different epidemics has, of course, long been known.

Types and Strains.

In the first of his Milroy lectures, delivered in March, 1919, and since conveniently republished in book form,[1] Dr. McVail made a very careful study of the principal types of infection with their differing morbidity and fatality, which should be read afresh at this juncture.

From extensive data Colonel King summarises the evidence as pointing to grades of virulence of small-pox under two types or parent stocks, two strains, descendants of the parent stocks, and one substrain.

1. The Eastern type, representing the most virulent strain and found east of longitude 40° E. and between 40° N. and 6° S., where amongst Asiatic populations the general fatality rate from the disease ranges from 33 to 50 per cent., in the vaccinated of all ages from 30 to 60 per cent. and in the unvaccinated from 60 to 80 per cent.

(i.).—Western strain, which has lost much of the virulence of its parent, the Eastern type, by gradual transference from Asiatic races and tropical conditions, and is found to the west of longitude 40° E., extending throughout parts of the world largely inhabited by Europeans and their descendants. The general fatality of this strain in pre-vaccination days varied from 18 to 25, but since this period, in the vaccinated from 1 to 5 and in the unvaccinated from 19·3 to 47 per cent.

(i.) *a.*—The Western substrain is taken to prevail over Norway, Sweden, Denmark, the British Isles, France, Switzerland, Belgium, Holland, and Germany—countries in which, the case of Belgium excepted, vaccination is carried out more or less consistently; and whereas the general fatality rate is lower than in any part of the world affected by the Eastern type or its Western strain, the existence of this substrain deserves recognition. Within the area of this substrain the virulent Eastern type fails, in the course of several transmissions, to preserve its original virulence.

2. A second type of small-pox, with a general case-fatality of 3·8 to 4·3 per cent., is recognised in South Africa, designated the "amaas" type, and characterised by its mild constitutional symptoms from both the Eastern type and the Western strain.

(ii.).—It is probable that from this mild type a strain of still less virulence has been derived, known as the "amaas" strain, and showing itself in races of European origin in America, in Canada with a general fatality rate of about 1·8 per cent., and in Australia of less than one per mille.

Doubtless the recently described "alastrim" belongs to this strain.

Is Small-pox Dying Out?

The existence of types of small-pox as pointed out by Dr. McVail is deserving of important recognition, if only to controvert the danger of falling into line with the statement emanating from Dr. C. K. Millard that small-pox, so far as this country is concerned, is dying out. Such a statement Colonel King rightly emphasises as likely to be seized upon by the antivaccinist; it might, indeed, well lead to a disastrous relaxation of our means of protection by vaccination, if such a point has not already been reached. It cannot be gainsaid that, particularly in the poorer quarters of the London area, a large proportion of the young population are growing up unvaccinated, and likely to provide a ready soil for the outbreak of a serious epidemic in the presence of a mild or unrecognised focus of infection.

An example of the possibility of such a spread is supplied by the concise account of the dissemination of the disease, contained in the paper by Captain G. G. Johnstone, who describes in the present issue of THE LANCET an outbreak of small-pox in the part of Germany occupied by the British army. But for the activities of the British military authorities in insisting on vigorous isolation of patients and contacts and the general vaccination of inhabitants, the spread of infection might well have covered a very extensive area and dangerously hampered the occupying troops.

Colonel King attempts to reconcile the divergent opinions expressed by Dr. Millard and Dr. McVail. The former of these two in his belief that small-pox in this country is dying out advocates the application of the "Leicester method," which neglects to enforce infantile vaccination, and trusts to careful segregation of cases and sanitary measures with vaccination of contacts. Dr. McVail, while regarding the neglect of infantile vaccination as dangerous in view of the impossibility of forecasting the incidence and type of the disease which may become prevalent, also comes to the conclusion that a great diminution in the infectivity, fatality, and prevalence of small-pox has taken place in Great Britain during the last 50 years, but attributes this to the advent of two different types—the North African and American—the probability of which is demonstrated during the period 1902 to 1905, when in London the North African type prevailed, with a mortality of 16·8 per cent. in 9659 cases, whereas in the provinces, where the milder American type was dominant, the rate was only 6·9 per cent. in 23,883 cases. The transit of the North African type to London is readily accounted for by the easy communication between Tunis (with its mortality rate of 40·4 per cent.) and Marseilles (41·4 per cent.), and thence to Paris.

The uncertainty as to the type of disease which may become prevalent, particularly under conditions now existing in the wake of the war and the impossibility of forecasting its infectivity in the face of large numbers of unvaccinated young people, are matters which cannot be neglected nor their attendant risks exaggerated. The elasticity of the legislation controlling vaccination and the unwise exemption granted to conscientious objection demand urgent revision of the whole subject in its bearing on national prophylaxis.

Colonel King quotes convincing arguments against the application of the "Leicester method," particularly in the tropics, instancing the influence of vaccination in Calcutta in five years preceding 1914. The Gloucester epidemic of 1896 referred to, also provides ample proof of the inefficacy of segregation without vaccination. He maintains that there is no reason to believe that small-pox is dying out in consequence of modern sanitary conditions—a result which would not necessarily be confined to Great Britain.

Geographical Distribution of Small-pox.

The valuable and instructive map of the world accompanying Colonel King's paper affords a graphic means of recognising the distribution of the *particular types* and strains, together with their comparative virulence and fatality rates drawn from the largest and most reliable data, and confined to the period of, and subsequent to, 1902.

The countries where vaccination is compulsory, where compulsion is well exercised, where vaccination receives official recognition but is not legally enforced, and where enforced in special areas, are designated by distinctive markings. From these much may be learnt—e.g., the fact that in Belgium, where vaccination is merely recommended, the fatality rate is 16·3, and in Luxembourg 19·7, whereas in France and Holland, on either side, both countries well vaccinated, the rates are only 8·4 and 8·7 respectively.

Interesting conclusions are also drawn from this map:—

1. As to possible modes of transference of the disease from country to country. Such are obvious in the passage of travellers during incubation, by trade and pilgrim land routes and by shipping routes through seaports within a 12 days' period.

2. In the influence of climate on the virus Duncan Stewart is quoted as concisely defining the conditions under which its diffusion is favoured by dry and cold weather and adversely by damp heat—factors which govern equally the vitality of the vaccine.

3. Individual peculiarities of families, communities, and races, known to exist both in their susceptibility to the disease and their response to vaccination, may well influence an epidemic outbreak and enable a weakly strain of small-pox to regain its virulence when implanted on a susceptible soil.

4. The influence of a low grade of personal and sanitary hygiene renders possible the harmful action of associated organisms in aggravating the variolous skin lesions and in

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[1] Half a Century of Small-pox and Vaccination. Edinburgh: E. and S. Livingstone. Price 5*s.* 6*d.*

increasing the destructive properties of the virus, thus favouring the most virulent form of the disease Accident or neglect of proper precautions in vaccination may, for the same reason increase the local inflammatory reaction The beneficial effect of improved sanitation, it is suggested may be due to the limitation of extraneous and associated organisms, and consequently lead to a diminution in extent of the small pox lesion Conversely, it is deduced that the introduction of small pox of a mild type among people of low vitality in filthy and overcrowded conditions will result in a raising of virulence of the disease The variation in virulence of small pox epidemics has long been recognised and may be due to such factors producing an increase of or impairment of resistance to disease

5 Attenuation in virulence of small pox may be expected to occur when introduced into a community whose resistance has been raised in whole or in part by vaccination For ample evidence is claimed to show that a beneficial modifying action persists as a result of infantile vaccination even in the absence of revaccination

The facts as to the power of vaccination to protect the individual and prevent the spread of infection in the community are so clear as, Colonel King states, to need *no emphasis*, those bearing on the duration of immunity afforded by vaccination or an actual attack of small pox are however, far from attaining definition, albeit statistics would seem to show that the vigorous age of life may afford to vaccinated and unvaccinated alike a better chance of resistance than at the early or late periods of life, but failing protection by means of previous small pox, inoculation, or vaccination, all ages are equally susceptible to attack

Revaccination

As experience of the disease grows in both temperate and tropical countries the period of protection conferred by a primary vaccination has, Colonel King states, gradually diminished, and evidence shows that in the case of those vaccinated in early life the incidence and fatality of small pox increase with advance of age—e g the susceptibility of the aged inmates of the almshouse at St Vith, as recorded in Captain Johnstone s paper The necessity for revaccination was recognised by the Government in Madras so long as 1894, and, as is of course well known, is acted on and strictly carried out in our services Such examples should materially assist in educating public opinion in this direction, and lead to a realisation of the importance of the legislation in force in France, also in Prussia since 1874 by which revaccination is secured at puberty

Vaccine Institutes and Vaccine Stock

Considerable attention is devoted by Colonel King to the great importance of the provision of vaccine institutes, particularly in tropical climates, with special regard to the requirements of the tropics and essential equipment for the maintenance of strict asepsis and preparation of vaccine by properly trained staffs He emphasises the necessity of maintaining the vaccine used in the tropics in a high state of activity, and, bearing on this need, contends that as the Eastern type of disease is possessed of much greater and more deadly virulence than the Western a relation exists between this virulence and the case fatality not only in the unvaccinated but in the degree of immunity from death conferred by vaccination in the case of those infected by the Western type when compared with those attacked by the Eastern type He quotes tables in support of this belief, and claims that so formidable a type as the Eastern calls for the use of a very special vaccine, for its virulence is deadly even among the vaccinated He points out that the question of the origin of vaccine or of the true nature of the *causa causans* of small pox is in danger of being indefinitely shelved and that the degeneration or death of a vaccine stock, despite the most favourable conditions prevailing, may occur as the result of accident or unforeseen circumstances Considerable controversy has raged in time past on the subject of vaccine stock and when Ceely, in 1839, and others subsequently, secured stocks by direct inoculation of bovines by the use of both vaccine and small pox virus on different but closely adjacent sites Doubts were raised as to the genuineness of these results and those of Voigt at a later date in 1881 It remained for Simpson, in 1884, to close the controversy by successfully securing undoubted variola vaccine stock through direct inoculation of a bovine with small pox virus, and by the use of this stock for the vaccination of 1200 infants without untoward result In dealing at length with the question of vaccine stock Colonel King describes another recognised source in the disease as it appears in bovines (cow pox), and the process by which degenerated vaccine may be rejuvenated He supports the method of obtaining variola vaccine stock by the inoculation of bovines with vaccine and small pox virus as sound and certain, and is further of opinion that the mode of rejuvenating vaccine is possible by utilising an animal which has been regarded as of no further use for the purpose, but where an attempt to get variola vaccine has been made with simple variolation without vesiculation resulting The use of intravenous injection is dwelt upon as a likely means in future of securing certainty as to the sufficiency of the dose of small pox to obtain vesiculation in bovines Such a method of vaccination is suggested by a quoted writer as applicable to the human being, once the dose is established, and likely, without *any prolonged disability or discomfort*, to confer immunity covering a very long period

The Dual Nature of Small pox

Support is lent to the view originally expressed by Simpson in 1892 as to the dual nature of small pox, and to the suggestion of others, at a later date, that symbiosis plays a part in vaccine production The suggestion made that, if the Chinese have successfully caused small pox to be communicated by blowing scabs into the nostrils, this dual nature may be due, as possibly in the case of influenza, to an ultramicroscopic organism, and its requiring a symbiosis for full virulence, opens the ground for plentiful discussion

Vaccination Departments

Granted the supply of vaccine in an active condition and in quantity sufficient for primary vaccination, revaccination, and epidemic emergencies, it next devolves to ensure use of the vaccine to the best advantage This, Colonel King rightly maintains, " can only be secured by determining to utilise well educated and reasonably paid men " in staffing the vaccination departments—e g , sanitary inspectors who in addition to a course of training in hygiene, physiology, and bacteriological demonstrations, undergo periodical examinations and a three months course in all that appertains to human and animal vaccination, in order to become vaccinators and deputy inspectors of vaccination under the supervision of a special medical officer

Sanitary Organisation against Small pox

The Scottish Board of Health in a recent circular impresses upon medical practitioners the need for close cooperation with the public health departments in their efforts to prevent the spread of the disease, with a view to securing early diagnosis in suspected cases Communication with the medical officer of health of the area at the earliest moment is imperative in order that, should suspicion be confirmed, all necessary precautions may be taken pending removal to hospital Where no doubt exists as to the diagnosis the patient and all immediate contacts are warned to remain where seen until the arrival of the sanitary officials The danger to others of infected persons travelling by car or other public vehicle is always to be kept in view and impressed on patients

Colonel King's highly important contribution to the subject of small pox and its prevention concludes with a well advised note on sanitary organisation which, he says, should be directed to securing instant intelligence of attacks and prevention of spread of infection He emphasises the call for vaccination as the first line of defence with sanitation available as a reserve as soon as danger threatens

The experience of the Scottish Board of Health suggests that the protection which successful vaccination affords is not sought by the population at large until a wholesale dread of contracting small pox arises from the actual proximity of the disease and the occurrence of deaths as a result of it The general practitioner can render invaluable assistance not only in vaccinating those who desire to be vaccinated, but by persuading all those with whom his work brings him in contact—and especially the parents or guardians of unvaccinated children—to have the operation performed without delay.

As no country can be said to be free from invasion in the presence of a pandemic disease, legislation should be possible to prevent the passage of persons from one country to another unless freedom from communicable disease is assured. Such a principle should apply particularly to aliens seeking labour in tropical countries and the guarantee be required of recent vaccination. Colonel King further draws attention to the necessity of the British Empire awaking to the importance of the example in force in the public health service of America, by placing special officers at the chief foreign ports, and elsewhere trusting to consuls, to maintain touch of diseases throughout the world. Professor E. W. Hope in this connexion is quoted as forcibly proclaiming the error of ignoring the necessity for bringing the pandemic disease of small-pox within the scope of an international convention. Such a step can alone rouse us from the sense of false security, short of a severe and widespread outbreak for which the increasing number of unvaccinated persons in this country and elsewhere is smoothing the way.

THE ROYAL SOCIETY CONVERSAZIONE.

WHILE the exhibits at the conversazione of the Royal Society, held on Wednesday evening, May 12th, were not so numerous as on pre-war occasions, they were of considerable interest, covering many scientific fields, though medicine was represented in few direct ways. Pure science seems to have held first claim to parade, but the opportunity seems to have been missed of presenting examples of the fruits of advice given by the Society to the Government through the war. Nor were there any illustrations of the advances made by a coöperation of university activities with those of the factory.

Fluorescence, Osmotic Processes, and Synthetics.

A very fascinating demonstration was that of fluorescence in Lepidoptera by ultra-violet radiation by Dr. J. C. Mottram and Dr. E. A. Cockayne. These investigators employed filtered light from a mercury-vapour lamp, using only radiations of certain wave-lengths. When exposed to these rays and viewed, of course, in the dark, the fluorescence of the wings of butterflies and moths was most remarkable, some more brilliant than others resembling a bright opal matrix under the most favourable conditions. This curious analysis of light (we must remember white light is a composite of primary colours) can be exhibited to some extent in a solution of the wings of certain species in glacial acetic acid.

Close by, an interesting document was shown: the original letter of Priestley which in 1779 announced the discovery that plants give off oxygen.

Osmosed clay easily enough may have medical significance. Specimens of this were shown by the Osmosis Company, Ltd. So far the process has been applied to the purification and decolorising of china clay for the manufacture of paper and clean fire-clays, and the results are of the most encouraging description. The process is based on an electrolytic selective action.

The only exhibit illustrating a captured industry was that of Messrs. J. Crosfield and Sons, Ltd., who showed an attractive series of synthetic products for perfumery formerly elaborated entirely in foreign countries. The manufacture was installed owing to the difficulty, in some cases impossibility, of obtaining such products during the war.

Bacterial Photography, Mites, Fleas, and Vitamines.

There was an interesting series on view in the Council Room of photomicrographs obtained by means of ultra-violet light by Mr. J. E. Barnard. An important advantage of employing ultra-violet light for this purpose in microscopical work is that biological preparations, particularly bacteria and other micro-organisms, are rendered sufficiently opaque to ultra-violet light of suitable wave-length to render staining unnecessary. This appears to open up a very promising field of investigation, for by this method micro-organisms can be photographed in the living state.

Professor R. Newstead exhibited samples of mite-infested flour, which illustrates the importance of preventing mite invasion. When this happens the flour is ruined, and develops a most unpleasant odour and becomes discoloured owing to the quantities of excrement with which it is charged. A high moisture content invites invasion.

Professor G. H. F. Nuttall and Dr. D. Keilin exhibited microscopic specimens illustrating hermaphrodites of inter-sexual type in *Pediculus humanus.* The exhibit comprised a complete series of forms from those of male type to those of female type, the coexisting characters of both sexes being present to a varying degree. It is pointed out that the inter-sexual forms which occur among pediculi in nature are derived from the crossing of the races *of P. humanus*—i.e., capitis and corporis. Some of these crosses yield up to 20 per cent. of hermaphrodites, and the appearance of hermaphrodites in a given stock is always accompanied by a great decrease or almost complete disappearance of females.

Professor E. Mellanby, whose work on the subject is familiar to our readers through our columns, gave striking illustrations of the effect of the absence of an accessory food factor (probably fat-soluble A) in the diet of puppies which developed rickets. The investigation by Mrs. Mellanby also demonstrated that diets deficient in an accessory food factor, possibly fat-soluble A, produce teeth defectively calcified and more or less irregularly placed in soft jaws. Referring to teeth, Dr. J. H. Mummery, in a demonstration of the nerve end-cells in the pulp of the human tooth, pointed out that the mode of distribution of sensory nerves in the pulp of the tooth was not met elsewhere in the body.

Frog Metamorphosis, Plant Respiration, and Wireless Telephony.

The influence of thyroid feeding on the frog was instanced in the exhibit of Mr. Julian Huxley and Mr. Lancelot T. Hogben. There were examples of (1) acceleration of a frog's metamorphosis by thyroid feeding; (2) metamorphic changes induced by iodine; and (3) metamorphosis of amblystoma by thyroid feeding with a control.

A quite interesting demonstration of an ingenious apparatus recording the rate at which air under slightly reduced pressure is drawn through the pores of a leaf was given under the direction of the Botany Department of the Imperial College of Science and Technology. This recording porometer gives a measure of the size of the pores, which varies for different leaves. It is of interest also to mention the system described by Mr. Edwin Edser of concentrating minerals and coal by froth flotation. Shortly, this is done by adding water to the low-grade mineral, which is reduced to a fine state, then forcing a stream of minute bubbles of air through the fluid, which brings the valuable material to the surface, which can be skimmed off. The barren material, rock or slate, is not floated.

Lastly should be mentioned as a modern wonder the demonstration of wireless telephony given in the meeting room. The audience here heard plainly in all parts of the room a musical performance being given 30 miles away (Chelmsford). The loud-speaking telephone had no communication with that place except by the all-pervading ether; there were no wires, no pipes—in a word, no visible means of transmission at all.

Sir J. J. Thomson, the President, received a large company of distinguished guests.

DONATIONS AND BEQUESTS.—The Chelsea Hospital for Women has received a grant of £400 from the trustees of the Zunz Bequest.—The Royal Dental Hospital of London has received a donation of £500 from the trustees of Smith's (Kensington Estate) Charity.

SCOTLAND

(FROM OUR OWN CORRESPONDENTS)

Aberdeen Hospitals Scheme

AT a meeting of the Aberdeen University Court held on May 11th the following resolutions were unanimously adopted —

> Having considered the resolutions of the Aberdeen Medico-Chirurgical Society passed in conference with other members of the medical profession in the North of Scotland on March 16th and having heard the exposition of the same made by Professor Ashley Mackintosh at a conference in the Town House of the public bodies concerned on April 19th the Court now resolves to express its agreement—
>
> (*a*) With resolution 1 on the growing and clamant need in Aberdeen for largely increased hospital accommodation of the most modern type in order adequately to meet the requirements of the city and the North of Scotland especially in regard to the Royal Hospital for Sick Children and the Royal Infirmary
>
> (*b*) With resolution 2 that these requirements cannot suitably be met by any extension of these hospitals on their present sites or in their immediate vicinity and
>
> (*c*) That the substance of resolution 3—namely not only that the concentration of these hospitals upon a common site on which their extension from time to time would be possible is very desirable but that in view of all the circumstances the present is an opportune time for taking the initial step towards that end Further the Court resolves to express its opinion that should such combination of the hospital be carried out it would be in the interests of medical education as well as of the patients if certain departments of medical instruction and research in the University were removed as opportunity might offer to the same site

At a meeting of the Aberdeen Royal Infirmary Board held on May 12th the board, after consideration of the resolutions of the Aberdeen Medico Chirurgical Society, passed at its meeting on March 10th last, and submitted and explained by Professor Ashley Mackintosh at the conference of public bodies interested, held in the Town House on April 20th last, resolved that, to enable them to lay the proposals suggested in the society s resolutions before the managers for their consideration, it was desirable that further conferences should proceed between the public bodies interested in order that the financial and other aspects of the scheme should be considered, with a view to determining its practicability The board approved of the chairman attending any further conferences

Aberdeen University Appointments

At a meeting of the Aberdeen University Court, held on May 12th, Mr J Scott Riddell was appointed external examiner in surgery for the degree examinations which are to be held at the end of the present term It was agreed to appoint a lecturer in anatomy at a salary of £400 a year

Small pox in Glasgow Memorandum on the Value of Vaccination

In view of the increasing prevalence of small pox in Glasgow and neighbourhood, the Council of the Royal Faculty of Physicians and Surgeons issued on Saturday last, through the local press, a reasoned statement of the value of vaccination as a protection against small pox After briefly reviewing the appointment of the Royal Commission in 1889 and the main conclusions to which it came, the gist of Section 503 is quoted —

> We can see nothing to warrant the conclusion that in this country vaccination might safely be abandoned and replaced by a system of isolation What [isolation] can accomplish as an auxiliary to vaccination is one thing whether it can be relied on in its stead is quite another

The Memorandum concludes with the following summary of the events of the 1900/02 epidemic of small pox in Glasgow —

> The value of effective recent vaccination was amply illustrated in local experience during the prevalence of the disease in Glasgow which began in 1900 Early in 1901 the committee on health offered free vaccination on a wide scale and ultimately over 400 000 of the population availed themselves of the offer Not one case of small pox occurred among this number All the cases of the disease which did occur—over 1800—were drawn from those who had not accepted the offer We think it impossible to over-emphasise this demonstration of the value of recent vaccination It is strengthened by the experience of the small pox hospital itself The medical and nursing staff numbered 80 all were efficiently vaccinated and none contracted the disease although in daily contact with it Fifty hospital servants had a like experience For purposes of clinical instruction in the disease 150 practitioners and students of medicine visited the hospital It was a condition of admission that they should be vaccinated beforehand none contracted infection It was necessary to extend the hospital during the outbreak and 230 workmen were employed 217 accepted revaccination and none of these contracted the disease 13 refused vaccination or for some other reason were not recently vaccinated 5 of the 13 contracted the disease and 1 died

Dr A Freeland Fergus, President of the Faculty, and other medical men who signed the Memorandum, state that collectively they regard these facts as completely establishing the protective value of vaccination

At the recent monthly meeting of the Royal Faculty of Physicians and Surgeons of Glasgow, James Devon, *L R C P Edin*, *&c*, *Alexander Morton*, *M D*, *and* Edward James Primrose, M D , B Sc , were admitted as Fellows of the Faculty

The Glasgow University Club will dine at the Holborn Restaurant London on Friday, June 4th, at 7 30 P M , the Right Hon A Bonar Law, Lord Privy Seal and Lord Rector of the University, in the chair All communications should be made to Dr Alex Macphail, honorary secretary, at St Bartholomew s Hospital, London E C 1

May 17th

PARIS

(FROM OUR OWN CORRESPONDENT)

Influenza Statistics

THE municipal registration office has just issued a full report on the statistics of last year s epidemic of influenza Apparently the epidemic was more serious than was thought and more serious also than was shown by the actual death rate 3098 men and 5377 women died in Paris of influenza, which attacked principally healthy adults, and was especially virulent in the case *of women from 20 to 40 years old, whose mortality* is given at the amazing figure of five times the average influenza mortality

Institute of Hygiene in the University of Paris

An institute designed to train specialists in this branch of medicine and to centralise the laboratories of allied subjects is apparently soon to be established An agreement has been arrived at between M Breton, the head of the new Ministry of Hygiene, and the Ministry of Public Instruction, represented by M Roger, dean of the Faculty of Medicine As a matter of fact the teaching of hygiene is already well organised, with theoretical and practical classes, at the Faculty of Medicine There is no question of supplanting these courses It can, nevertheless, be foreseen that the two organisations will inevitably overlap, with resulting unnecessary increase of expense in upkeep, personnel, and buildings M Hayem had suggested to the Academy of Medicine that it would be possible to economise considerably by taking over the already existing well appointed Institute of Hygiene established by the *Germans at Strasbourg, but the professor of the Faculty* of Hygiene at Paris brought up a number of objections and claimed an institute for Paris If public hygiene depended merely on the number of establishments created and on the amount of money laid out, its advance in Paris would be assured

The Association of the Presse Médicale Française

This association has recently held an election, the terms of office of the presidents M Albert Robin and M Marcel Baudouin having expired Dr Raoul Blondel, director of the *Revue Thérapeutique*, and Dr La Sourd, editor of the *Gazette des Hôpitaux*, and, to represent the provincial press, Dr Monprofit, of Angers, have been elected presidents

May 17th

THE Mayor of Volksrust, Transvaal, presided at a dinner held recently in honour of Dr W J Watt local medical officer of health and South African Railway surgeon The company was a very representative one, and Dr Watt was accorded many demonstrations of the goodwill and regard in which he is held by the community of this important district The evening concluded with the presentation of a well filled purse the gift of a wide circle of friends

A MONTHLY RECORD OF ATMOSPHERIC POLLUTION.

METEOROLOGICAL OFFICE: ADVISORY COMMITTEE ON ATMOSPHERIC POLLUTION: SUMMARY OF REPORTS FOR THE MONTHS ENDING

Dec. 31st, 1919.

Place.	Rainfall in millimetres.	Metric tons of deposit per square kilometre.								
		Insoluble matter.			Soluble matter.		Total solids.	Included in soluble matter.		
		Tar.	Carbonaceous other than tar.	Ash.	Loss on ignition.	Ash.		Sulphate as (SO_3).	Chlorine (Cl).	Ammonia (NH_3).
ENGLAND.										
London—										
Meteorological Office	80	0·20	2·07	3·66	2·88	2·24	11·05	0·88	0·85	0·08
Embankment Gardens	81	0·15	2·64	6·03	2·08	5·07	15·97	2·40	0·89	0·17
Finsbury Park ...	102	0·02	2·05	7·05	2·64	6·46	18·23	3·34	0·98	0·18
Ravenscourt Pk.	84	0·13	2·06	5·41	2·87	5·02	15·48	2·61	0·73	0·18
Southwark Park	86	0·09	2·15	3·99	3·45	7·63	17·30	3·93	0·97	0·20
Wandsworth Com.	87	0·12	0·95	2·80	3·11	6·00	12·99	3·02	0·92	0·10
Golden Lane ...	71	0·04	2·07	2·68	2·28	4·27	11·33	2·13	0·91	0·21
Kingston-upon-Hull	82	0·20	1·27	2·89	1·80	5·41	11·57	2·54	1·10	0·09
Newcastle-on-Tyne..	73	0·15	2·16	3·66	1·02	4·65	11·64	1·67	0·64	0·13
Rochdale	—	—	—	—	—	—	33·06	—	—	—
Rothamsted	106	—	0·54	0·51	2·12	2·10	5·28	—	—	—
St. Helens...	132	0·17	3·45	5·18	1·98	6·62	17·40	2·36	1·98	0·11
Southport—										
Hesketh Park ...	108	0·02	0·68	1·23	1·89	6·75	10·58	2·29	1·24	0·01
Woodvale Moss...	93	—	—	—	—	—	6·58	—	—	—
SCOTLAND.										
Glasgow—										
Alexandra Park...	111	0·11	1·04	3·97	3·02	4·95	13·09	2·35	1·62	0·15
Bellahouston Pk..	124	0·01	0·79	1·58	2·28	6·31	10·97	2·20	1·94	0·07
Blythswood Sq. ...	122	0·12	1·03	3·74	3·14	5·65	13·68	2·53	1·98	0·19
Botanic Gdns. ...	120	0·01	1·91	2·80	2·78	6·70	14·20	2·76	1·63	0·12
Queen's Park ...	131	0·05	0·61	1·29	1·52	5·60	9·07	2·26	1·70	0·05
Richmond Park...	143	0·09	1·93	3·62	2·88	7·25	15·77	2·99	1·89	0·21
Tollcross Park ...	121	0·08	1·88	3·85	3·05	6·29	15·15	3·47	1 57	0·13
Victoria Park ...	117	0·05	0·75	2·60	3·03	5·04	11·47	2·46	1·56	0·15

"Tar" includes all matter insoluble in water but soluble in CS_2. "Carbonaceous" includes all combustible matter insoluble in water and in CS_2. "Insoluble ash" includes all earthy matter, fuel, ash, &c. One metric ton per sq. kilometre is equivalent to: (*a*) Approx. 9lb. per acre; (*b*) 2·56 English tons per sq. mile; (*c*) 1 g. per sq. metre; (*d*) 1/1000 mm. of rainfall.

Jan. 31st, 1920.

Place.	Rainfall in millimetres.	Metric tons of deposit per square kilometre.								
		Insoluble matter.			Soluble matter.		Total solids.	Included in soluble matter.		
		Tar.	Carbonaceous other than tar.	Ash.	Loss on ignition.	Ash.		Sulphate as (SO_3).	Chlorine (Cl).	Ammonia (NH_3).
ENGLAND.										
London—										
Meteorological Office	55	0·28	3·16	5·17	1·98	1·32	11·91	1·04	0·97	0·05
Archbishop's Park	60	0·09	2·27	2·79	0·72	3·78	9·65	1·44	0·70	0·06
Finsbury Park ...	62	0·05	0·91	2·46	2·37	3·03	8·83	1·65	0·59	0·06
Southwark Park	56	0·07	1·22	2·52	1·30	3·53	8·63	1·27	0·66	0·11
Victoria Park ...	56	0·02	0·62	1·42	0·96	2·51	5·53	1·02	0·59	0·04
Wandsworth Com.	62	0·04	0·54	1·63	1·51	3·20	6·92	1·18	0·80	0·08
Golden Lane ...	49	0·06	2·18	3·52	0·98	3·33	10·07	1·51	0·73	0·08
Birmingham—										
Central	71	0·11	3·30	7·05	0·92	6·24	17·62	2·37	0·57	0·05
Aston	64	0·10	1·83	5·29	0·76	3·65	11·63	1·38	0·45	0·04
South-Western ...	74	—	—	—	0·65	2·43	—	0·80	0·29	0·02
Kingston-upon-Hull	51	0·12	0·86	2·54	1·74	8·66	13·92	1·70	0·73	0·05
Malvern	80	Nil	0·24	0·88	1·13	2·83	5·20	1·80	0·43	0·25
Newcastle-on-Tyne	68	0·19	2·27	3·54	1·23	2·70	9·91	1·64	0·48	0·14
Rochdale	—	—	—	—	—	—	26·50	—	—	—
Rothamsted	66	—	0·55	0·98	0·26	2·34	4·13	—	—	—
St. Helens...	104	0·26	3·36	4·99	0·41	5·81	14·83	2·07	1·68	0·23
Southport—										
Hesketh Park ...	85	0·03	0·58	1·50	0·96	4·53	7·60	1·19	0·95	0·13
Woodvale Moss...	54	—	—	—	—	—	4·55	—	—	—
SCOTLAND.										
Glasgow—										
Alexandra Park...	103	0·06	1·52	2·48	4·50	5·18	13·74	2·78	2·09	0·10
Bellahouston Pk.	115	0·04	0·73	1·18	4·65	6·83	13·43	3·15	3·84	0·08
Blythswood Sq. ...	109	0·06	1·60	2·45	3·87	5·76	13·74	2·94	2·75	0·17
Botanic Gdns. ...	128	0·08	1·31	2·46	4·91	5·99	14·75	3·43	2·48	0·14
Queen's Park ...	126	0·05	0·81	1·85	2·54	3·02	8·27	2·01	2·51	0·10
Richmond Park...	132	0·08	1·42	2·45	4·13	6·63	14·71	3·39	2·59	0·20
Ruchill Park ...	127	0·06	1·71	2·61	5·52	3·48	13·38	3·42	2·69	0·13
Tollcross Park ...	121	0·06	1·67	3·32	3·10	5·32	13·47	3·12	2·25	0·17
Victoria Park ...	120	0·05	1·84	0·32	3·85	6·27	12·33	2·89	2·58	0·15

The personnel of public health authorities concerned in the supervision of these examinations and of the analytical work involved remains the same as published in previous tables. The analyses of the rain and deposit caught in the gauge at the Meteorological Office are made in THE LANCET Laboratory.

There were no returns from the following stations during the month of December, 1919: Victoria Park (London), Malvern, and Manchester, while at one station in Glasgow (Ruchill Park) an accident happened to the collecting bottle, and at Stirling the bottles were broken by frost. There was again lead present in the deposit of the Glasgow samples. In January, 1920, there were no returns from the following stations: Ravenscourt Park (London), Stirling, and Manchester. Evidence of contamination from the fittings of the gauge is reported from the south-western station at Birmingham. The gauge at the observation station on the London Embankment Gardens has been transferred to Archbishop's Park. Lead was again reported in the deposit of the Glasgow samples.

URBAN VITAL STATISTICS.

(Week ended May 15th, 1920.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 18 million persons, the annual rate of mortality, which had declined from 18·7 to 13·8 in the seven preceding weeks, was again 13·8 per 1000. In London, with a population of nearly 4½ million persons, the annual death-rate was 12·5, or 0·5 per 1000 below that recorded in the previous week, while among the remaining towns the rates ranged from 5·0 in Southend-on-Sea, 6·4 in Ealing, and 6·6 in Edmonton, to 23·3 in Wigan, 26·6 in Sheffield, and 28·8 in Tynemouth. The principal epidemic diseases caused 339 deaths, which corresponded to an annual rate of 1·0 per 1000, and comprised 116 from measles, 78 from whooping-cough, 75 from infantile diarrhœa, 41 from diphtheria, 20 from scarlet fever, and 9 from enteric fever. Measles caused a death-rate of 1·6 in Brighton and in Swansea, 1·7 in Walsall, 2·4 in Wigan, 3·8 in Rhondda, and 3·9 in Norwich, and whooping-cough of 2·4 in Darlington. The deaths from influenza, which had steadily declined from 392 to 201 in the seven preceding weeks, rose to 216, and included 51 in Sheffield, 32 in London, 10 in Newcastle-on-Tyne, and 9 in Manchester. There were 1916 cases of diphtheria, 1757 of scarlet fever, and 6 of small-pox under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospitals, against 1947, 1794, and 11 respectively at the end of the previous week. The causes of 41 of the 4708 deaths in the 96 towns were uncertified, of which 8 were registered in Liverpool, 7 in Birmingham, and 3 each in Stoke-on-Trent and Manchester.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2¼ million persons, the annual rate of mortality, which had been 19·2, 18·3, and 18·4 in the three preceding weeks, fell to 16·9 per 1000. The 397 deaths in Glasgow corresponded to an annual rate of 18·6 per 1000, and included 27 from measles, 22 from influenza, 9 from small-pox, 4 each from diphtheria and infantile diarrhœa, and 2 from whooping-cough. The 79 deaths in Edinburgh were equal to a rate of 12·1 per 1000, and included 5 from influenza and 1 each from diphtheria and infantile diarrhœa.

Irish Towns.—The 164 deaths in Dublin corresponded to an annual rate of 20·6, or 2·3 per 1000 below that recorded in the previous week, and included 11 from measles, 10 from whooping-cough, and 1 each from infantile diarrhœa and influenza. The 134 deaths in Belfast were equal to a rate of 16·9 per 1000, and included 8 from influenza, 6 from infantile diarrhœa, and 1 from whooping-cough.

UNIVERSITY OF LIVERPOOL.—Messrs. Alfred Holt and Co. have given £15,000 to the Liverpool University Appeal Fund. The Association of West African Merchants and the African Section of the Chamber of Commerce are raising £12,000 by voluntary collection from their members to provide a Chair of Colonial Commerce, Administration, and History at Liverpool University, and to increase the endowments of the Liverpool School of Tropical Medicine.

Correspondence.

"Audi alteram partem"

THE GENERAL PRACTITIONER AND THE TREATMENT OF TUBERCULOSIS

To the Editor of THE LANCET

SIR,—At the present time, with thousands of cases of tuberculosis among discharged soldiers entitled to medical care and treatment at the hands of the Public Health Service, we find ourselves confronted by the fact that practically nowhere will general hospitals admit this class of patients Moreover, there is almost everywhere throughout the United States a lamentable shortage of hospital facilities for those ill with tuberculosis *The opening of general hospitals to this class* of patients would do very much more than provide relief for a large class of unfortunates it would undoubtedly contribute enormously to the efforts now being made to control tuberculosis

As conditions are now, the interne serving his time in any of the general hospitals has practically no opportunity whatever to familiarise himself with the diagnosis and treatment of pulmonary tuberculosis It is small wonder, therefore, that so large a proportion of the general practitioners fall far short in their diagnoses of pulmonary tuberculosis The present practice also fosters the erroneous belief in some miraculous virtue in climate in the treatment of tuberculosis, yet those familiar with the disease recognise that it is the proper use of fresh air which constitutes the valuable element in treatment at the various well known sanatoriums

In an effort to make better provision for the tuberculous among discharged soldiers, and at the same time to help bring about an improvement in our campaign against tuberculosis, Dr Hugh S Cumming, Surgeon General of the U S Public Health Service, has sent the following telegram to the American Medical Association, now in session in New Orleans, La —

"I desire to urge more active participation by the general practitioner and by general hospitals in the treatment of tuberculosis To insure earlier diagnoses properly train internes and other personnel popularise treatment in the home climate, provide additional facilities I earnestly indorse the resolution passed by the National Tuberculosis Association in 1916 recommending that general hospitals should admit tuberculous patients and provide separate wards for that purpose Sanatoriums and specialists in tuberculosis will always be needed and we should have more of them, but I believe that success in the antituberculosis campaign is largely dependent upon first convenient facilities for observation and prompt treatment of patients with open tuberculosis, and second, in a sharpened perception and higher degree of skill by which the family doctor will make early diagnoses or even forestall the development of clinical tuberculosis in the adult before a definite diagnosis is possible To provide adequate care for tuberculous ex Service men and others to protect infants from infection enlist the aid of the general practitioner, allay phthisiophobia, and improve home treatment of tuberculosis, the opening of general hospitals to this most common of all serious diseases will materially assist"

I write by direction of the Surgeon General, and am Sir, yours faithfully,

CHARLES BOLDUAN,
Chief Section of Public Health Education
Office of the Surgeon General Treasury Department, Bureau of the Public Health Service Washington May 4th 1920

*** The participation of the general practitioner in the treatment of tuberculosis whether domiciliary or institutional, is the principle which all medicine in this country supports —ED L

POSITION OF THE CITY BACTERIOLOGIST

To the Editor of THE LANCET

SIR,—The annotation in your issue of May 15th on the position of the city bacteriologist moves me to offer a few remarks With the bulk of it I am in complete agreement the proposed arrangement works very well, and the difficulty of specialising bacteriology is adequately met, as far as the student is concerned, by leaving the teaching of bacteriology to medical undergraduates in the hands of the professor of pathology But it is untrue and unfair to imply that pathological work in many university laboratories has in the past been "starved" Universities have had many claims to meet, and on the whole pathology has had its fair share, it may have been a Chittenden diet, which is stimulating, but it cannot be reasonably described as starvation And to say that "research can only be satisfactory when carried out in a well equipped laboratory with a qualified and adequately paid staff" is equally untrue and equally unfair both to the magnificent achievements of the past, and to the tolerable performances of the present The real necessaries are imagination, brains, and industry If the sentence I have quoted means only that research would get along better if it had more money it is a pity not to say so, exaggerated hyperbole is as much out of place in stating the claims of the pursuit of natural knowledge as it would be in the narration of its results You repeat also the now familiar plaint about the immense gains which would accrue to medicine if professors of pathology, and so forth, had "free access to the wards and the status of physicians" I do not know whether you have considered how such a plan would work in actual practice The objects in the wards to which access is wanted are sick people Someone has to be responsible for doing the best that can be done to make them better, and that someone has got to have undivided control over their treatment If pathologists are better at this kind of work than physicians and surgeons, they are even more remarkable people than I have thought them to be—and probably worse pathologists For from the point of view of the progress of pathology such an arrangement would be, avoiding hyperbole, quite a bad one Pathology is a biological science, and there is a deal of it which has little or no immediate connexion, at the moment, with sick people Turn over the pages of some of the great books in pathology—Cohnheim's Lectures, Barlow's General Pathology, the first volume of Adami, Bordet's Immunity It is not within the compass of an ordinary human mind to make itself fit to live with such problems as are there raised, and to be the wise physician that the sick person wants at the same time The great conceptions of chemistry have not often been born in steel or cement works, the great discoveries of pathology have seldom been made at the bedside There are indeed not many of them, there might have been more if less of the energy of pathologists had been put into its technical applications What medicine gains from pathology and what pathology gains from medicine—and both are very large—can properly be achieved by the encouragement and development of what we commonly call "clinical pathology"—i e, the application to practical medicine of those parts of pathology which are technically useful It is quite unnecessary to hamper the study of pathology on the one hand, or to hazard the well being of the sick on the other —I am, Sir, yours faithfully,

Radlett May 16th 1920 A E BOYCOTT

SPECIFICITY AND EVOLUTION IN DISEASE

To the Editor of THE LANCET

SIR,—In the retrospect contributed under the above title, Sir William Collins does good service in again raising the issue as to whether or no we have yet realised the importance of evolutionary processes in the causation of disease He concludes, however, with the question, "Is not the theory of specificity of disease swallowed up in the larger theory of evolution?" and there seems an implied suggestion that the theories are mutually antagonistic Is this really the case? In a consideration of the factors involved in the spread of bacterial infection,[1] I was recently led to suggest, on experimental and theoretical grounds, that a possible explanation of the epidemic spread of disease might be found in a progressive variation of the causative virus, itself determined by changes in its environment; and a tentative hypothesis was advanced with regard to the causes and character of such a variation.

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[1] The Spread of Bacterial Infection, Goulstonian lectures 1919 THE LANCET 1919 ii p 1 et seq

In considering some of the possible deductions from such a theory, it was pointed out that—

> "It might, perhaps, be supposed that the acceptance of such a view as this would involve the belief that any bacterial parasite, given the requisite environmental conditions, might give rise to epidemic disease. Neither clinical nor bacteriological experience would, however, lend any support to such a view. ...... It would seem that we are dealing with a more or less specific capacity for variation, analogous to the acquired capacity for bringing about certain fermentations, which has been studied by Penfold and others. As the result of certain environmental changes the bacterial parasite will vary in a particular direction; but the ability to react in this way must be regarded as something inherent in the organism itself."

Thus an evolutionary hypothesis, in which especial emphasis is laid on changes in environment, does not exclude a belief in specificity, provided that this doctrine be not applied with an unintelligent rigidity. There is little evidence that we have fallen into error in believing that a given "disease" is caused by a specific organism, or sometimes by one or more of a definite group of organisms, and that in their absence the "disease" cannot occur. There seems reason, however, for thinking that we have not attributed sufficient importance to differences between various "strains" or "races" of a given bacterial species, or to the preponderating influence of environment on the evolution of those strains of the parasitic species which produce infection of the host. The future of preventive medicine would seem to be closely bound up with the acquirement of a fuller knowledge of the factors concerned in the production of such variations, and of the nature of the differences produced. An excellent example of the type of inquiry which will yield the data on which we must build is afforded by the admirable studies of Dr. A. Stanley Griffith on the types of *B. tuberculosis* isolated from various lesions in man.

The benefit that would most certainly accrue from the investigation of pathological problems on a wider and more comparative basis than is at present practised was pointed out by Sir Clifford Allbutt some months ago in a letter to the *Times*. If research and teaching could be established on the lines he indicates, there is little doubt that a decisive advance would be made along the path that will one day lead us to the conquest of infective disease.—I am, Sir, yours faithfully,

W. W. C. TOPLEY.

Institute of Pathology, Charing Cross Hospital, May 15th, 1920.

ANEURYSMAL VARIX IN THE NECK.

To the Editor of THE LANCET.

SIR,—A woman, aged 71, had a fall some years ago while cleaning a window. The frame broke and she fell backwards with frame and window on her. Nothing was noticed at the time in the neck, but she had glass removed from the face. Recently she developed an aneurysmal saccular swelling about the middle of the right transverse cervical artery, causing much pain and throbbing. The artery was tied by me near its origin on March 23rd last and the existence of a large expanded vena comes noted, which filled up with each beat of the artery. This sac has quite disappeared, but a fortnight ago aneurysmal swelling commenced in the inferior thyroid artery of the same side close to the clavicle and behind the sterno-mastoid muscle. As this aneurysm is so close to the origin of the artery to its parent trunk it would appear that further operation is impossible, especially in view of the patient's age. My friend, Mr. W. R. Williams, and I came to the conclusion that palliatives were now the only resource. The first part of the subclavian has, I believe, never been tied. If it were, what degree of collateral circulation would there be? I am writing this as I believe aneurysm of the thyroid axis and its branches are not common and aneurysmal varix very rare.

I am, Sir, yours faithfully,

May 17th, 1920. E. C. B. IBOTSON.

PROFESSIONAL SECRECY AND VENEREAL CLINICS.

To the Editor of THE LANCET.

SIR,—As it must be most distasteful to the medical officers of venereal disease clinics to be compelled in the courts to reveal their patients' conditions, would not a simple procedure avoid the possibility of this? The name of the patient is of no consequence to the medical officer. I should suggest that the registrar, or clerk, or nurse at the clinic receive directions to give to each patient a number, which would be written on their attendance cards previous to their seeing the medical officer; which number would on no account be changed during the whole course of treatment. Then the question of the name of the patient need not arise in the clinic at all and the position of both medical officer and patient would be more satisfactory; and there would be less hesitancy on the patient's part of availing himself or herself of the help held out by the Ministry of Health. I am, Sir, yours faithfully,

Dover, May 15th, 1920. F. A. OSBORN.

⁂ The plan has been suggested by others. The course of public and individual justice may make it necessary that the venereal state of a particular person at a particular time should be medically certified.—ED. L.

THE CULTIVATION OF THE MENINGOCOCCUS.

To the Editor of THE LANCET.

SIR,—In THE LANCET of March 27th Dr. William A. Muir, in a letter bearing this title, commented upon my article on the Univalent Serum Treatment of Cerebro-spinal Fever which appeared in your issue of March 13th. Since I do not have the opportunity of seeing many cases of cerebro-spinal fever at present, I determined that I would not reply until I had treated at least another case. I have now done so. It confirms in all essential particulars the points made in my article.

Regarding the cultivation of the meningococcus, I have again been able to obtain a sufficient growth of the meningococcus on ordinary "coagulated blood serum" slopes within 20 hours of inoculation of the tubes. This was done both during the primary attack and during a relapse which occurred about three weeks after the primary attack had subsided. The growth was in each case sufficient for the purpose of carrying out the test for type by the microscopic method. It may be well to state that in each case about 1 c.cm. of cerebro-spinal fluid was allowed to run directly from the lumbar-puncture needle into the warmed culture-tubes, and the tubes were incubated within ten minutes. In control-tubes inoculated with only a few loopfuls of the fluid no growth occurred. In connexion with the relapse above quoted, direct microscopic examination of the fluid showed numerous pus cells, but no organisms, and yet, in culture, about a dozen colonies were available the next morning (20 hours).

Regarding agglutination, I again found the microscopic method to be sufficient to establish the diagnosis of Type I. of the disease. The only difference from my previous case was that the positive result was rather longer in appearing (six hours), and was very marked indeed in 24 hours. Comparatively, any tendency to agglutination which occurred with the other sera (and that affected Type II. only) was absolutely negligible. Any ordinary observer would have had no difficulty in pointing to Type I. as the reacting serum. I have no doubt that the macroscopic method is more accurate and more reliable. But here it is not necessary to determine the end-point of agglutination capacity of a serum, but merely to determine, given four high-titre sera, which of them is the chief or only reacting one. If low dilutions are put up, this, in my experience, can be done; and the test is an easier and more familiar one to most workers in the small laboratories attached to fever hospitals.

Regarding the administration of the homologous serum I have not found the delay in diagnosing the type of the disease to be sufficient to put the method out of use. In practice I have found Type I. to be the common type occurring in this area, and each case I have seen has presented almost identical and distinguishing clinical features. In such circumstances I have since my first case given the homologous serum first and diagnosed the type afterwards (within 24 to 48 hours—not a serious delay in this type of case). The response to the homologous serum treatment has been nothing short of marvellous. I have, of course, no objection to the use of the pooled sera of Types I. and II. until the diagnosis is established, but I hold that it is better to give the direct treatment if possible.

It may be of interest to mention that I have been informed by Dr. A. T. MacConkey, of the Lister Institute, that the particular batch of Type I. serum I have used in these cases was the pooled sera of nine horses and was prepared in July, 1918, almost two years ago.

I am, Sir, yours faithfully,
H. STANLEY BANKS.

Motherwell, May 12th, 1920

THE CONTROL OF VENEREAL DISEASE: THE MISSION OF HOPE.

To the Editor of THE LANCET.

SIR,—May we, through your columns, make an earnest appeal for financial help in connexion with the opening of a new isolation home in London for the treatment of venereal disease? Amongst the 400–500 cases of unmarried mothers of the better class whom we receive every year in our maternity homes and hostels a considerable proportion are tainted to a greater or less degree. At the present time we are constantly confronted by the urgent need for isolation of these, as well as of a number of infants who are also infected. On the advice of the Ministry of Health a suitable house has been purchased in a healthy district of South London through the kind gift of an individual donor, and the London County Council have agreed to make a generous contribution to the cost of maintenance. So far as its size will permit all cases, both of mothers and children, will be isolated here, and will receive treatment in the out-patient departments of various metropolitan hospitals.

We are greatly handicapped, however, by shortness of funds for furniture and equipment with a view to the speedy opening of the home. The matter is really extremely urgent, and a sum of £500 is required immediately. We are anxious that the institution may do something to meet the menace of this terrible foe to the nation, and cordially invite the practical help of your readers to this end.

Yours faithfully,
G. H. HUBBARD, V.D.,
Chairman
JANET WALLIS,
Honorary Director

The Mission of Hope (Incorporated), 30, Denman street,
London Bridge, S E 1

THE RELATION OF GENERAL MEDICINE TO OPHTHALMOLOGY.

To the Editor of THE LANCET.

SIR,—Mr. C. Higgens, in his letter in your issue of May 1st, appears to have misunderstood the object of my paper, which was, as the title indicated, not primarily for the "help of the ophthalmic surgeon," as he states, but for the "advancement of ophthalmology" and the benefit of our patients. He opposes the appointment of ophthalmic physicians on the extraordinary ground that it would be of "greater assistance to medicine than to ophthalmology." Now, I ask, what higher object could ophthalmology have than to be of assistance to general medicine? Ophthalmology is not a science apart from general medicine and in competition with it. Surely it should be our highest aim to contribute to the advancement of medical science as a whole. On it we depend for most of our knowledge and our ultimate diagnosis and treatment, and I hold that we neglect our opportunities of repaying something of the debt we owe to general medicine by denying the physician the opportunity of the continuous investigation of those obscure cases of disease in which the eye symptoms predominate and are the chief evidence of constitutional disease. By the limitations of our training and practice we are incapable of carrying out these investigations ourselves, and we refuse to the physician the opportunity which can only be obtained in our ophthalmic hospitals.

I am, Sir, yours faithfully,
RAYNER D. BATTEN.

Wimpole-street, W., May 17th, 1920

PROPOSED DEMOLITION OF CITY CHURCHES.

To the Editor of THE LANCET.

SIR,—If the proposed demolition of certain City churches is carried out, memorials in them to the following physicians and surgeons will disappear:—

All Hallow's, Lombard-street.—Dr. Edward Tyson, F.R.C.P., F.R.S., the "Carus" of Garth's "Dispensary."

St. Botolph, Aldersgate.—Two distinguished medical men are buried here, and their memory perpetuated upon their monuments: (1) Sir John Micklethwaite, surgeon to Charles II.; (2) Dr. Francis Bernard, physician to James II. and to St. Bartholomew's Hospital.

St. Dunstan's-in-the-West contains a tablet with a long Latin inscription to a foreign practitioner, Albert Otho Faber, who died in 1684, and who was upon the medical staff of Charles II.

St. Vedast, Foster-lane.—Sir Thomas Browne, author of the "Religio Medici," was baptised there.

I am, Sir, yours faithfully,
S. D. CLIPPINGDALE.

Holland Park-avenue, May 17th, 1920

The Services.

R.A.M.C. COMMISSIONS

THE War Office announces that a limited number of commissions in the Regular Royal Army Medical Corps will be given at an early date to officers who are at present serving in the army or who have held commissioned rank during the war. Intending candidates, who will be required to fulfil the undermentioned conditions, should write for forms of application and further particulars to the Secretary, War Office (A.M.D. 1), Cornwall House, Stamford street, London, S E 1 Officers who are still serving should submit their applications through the usual official channels.

Following are the conditions of service:—1. Candidates must be registered under the Medical Acts now in force in the United Kingdom. 2. Be under twenty-nine (29) years of age. Previous commissioned service, if as a medical officer of the Royal Army Medical Corps, will count towards seniority promotion and retired pay. Commissioned service other than as a medical officer will count only towards retired pay. The period of any such service may be deducted from an applicant's age if this is over twenty-eight (28) years. 3. Be pronounced fit for general service by a military medical board.

The rates of pay are as laid down in Army Order 324, an extract from which is appended.

Army Medical Service	Per day		
	£	*s*	*d*
Major General	4	10	0
Colonel	3	5	0
Lieutenant Colonel	2	10	0
" after 20 years' total service	2	12	6
" " 25 " "	2	15	0
Major	1	15	0
" after 15 years' total service	2	0	0
Captain	1	5	0
" after 5 years' total service	1	7	6
" " 10 " "	1	10	0
Captain, holding higher rank by Brevet, in addition	0	2	0
Lieutenant	1	0	0

The rates of allowances, gratuity, retired pay, &c., will be communicated to intending candidates.

ROYAL NAVAL MEDICAL SERVICE.

Surgeon Lieutenant-Commanders to be Surgeon Commanders: A. T. Rivers, C. J. Aveling, J. M Hayes, P. B Egan, F. H Stephens, S. Bradbury, K. H. Hole, G F. Syms

ROYAL ARMY MEDICAL CORPS.

Lieut.-Col. F. S. Walker retires on retired pay

Lieutenant-Colonels and Brevet Colonels relinquishing the acting rank of Colonel: J. C. Connor, J. A. Hartigan.

Major H. H. J. Fawcett, Temp. Major W. E Home, Temp. Capts. J. R. C. Greenlees, A. J. Blake relinquish the acting rank of Lieutenant-Colonel.

Major T. E. Harty to be acting Lieutenant-Colonel.

Major P. J. Marett to be temporary Lieutenant Colonel whilst specially employed.

Capts. S. Fenwick, T. J. Hallinan, Temp. Capts N. A. A. Hughes, C. C. Forsyth, J. E. Thompson, and C. R. B. Von Braun relinquish the acting rank of Major.

Capts. P. J. Ryan and E. A. Strachan to be acting Majors.

Capt. J. J. Molyneaux is placed on the half pay list on account of ill-health.

T. W. Mason, late temporary Captain, and J. P. Bonfield, late Captain, Can. A.M.C., to be temporary Captains.

Officers relinquishing their commissions:—Temp. Major R. H. Bremridge (retains the rank of Major). Temp. Capt. F. R. Brown (granted the rank of Major). Temporary Captains retaining the rank of Captain: G. W. Ronaldson, F. B. Macdonald, F. B. Pinniger, T. S. Allen, T. E. Banister, E. L. Hopkins, P. S. Blaker, R. C. T. Evans, W. Fleming, R. W. D. Hewson, J. A. Ireland, J. A. Gilfillan, H. M. Drake, C. G. Whorlow, H. H. McClelland, P. C. Davie, G. V. Fiddian, T. Craig, R. Gellatly, J. P. Grainger, E. H. Dendy, C. R. B. Eyre, J. W. Steel, H. Daw, H. A. Lane, W. A. McLeod, J. W. Riddoch, C. K. T. Hewson, A. J. Beattie, T. Perrin.

Oversea Forces: South African Medical Corps.

H. Wolff to be temporary Captain.

The undermentioned relinquish their temporary commissions on account of ill-health:—Lieutenant-Colonels retaining the rank of Lieutenant-Colonel: P. S. Clark, R. L. Girdwood. Major W. Gilbert (granted the rank of Lieutenant-Colonel). Majors retaining the rank of Major: J. Hunter, R. C. M. Hoare, F. S. Jones, F. Pershouse, P. St. J. Wilkinson. Captains retaining the rank of Captain: A. P. M. Anderson, C. J. Battle, C. P. Bligh-Wall, T. L. Blackburn, I. J. Block, H. J. Brady, A. H. de W. Budler, T. P. Dowley, J. Duncan, H. Fox, C. Grant, A. L. Gurney, E. Hill, T. J. Howell, E. W. Ingle, A. M. B. Jassinowsky, A. H. Lawrence, R. L. Lloyd, J. J. Louwrens, G. M. MacKay, P. E. Millard, J. A. Mulvany, J. D. Murdoch, W. Paisley, P. Parnell, W. A. Rail, J. Rauch, C. D. Roberts, J. Rose, C. L. Seccombe, S. F. Silberbauer, St. J. Stanwell, L. V. Tebbs, J. C. Venniker, J. R. Whyte, H. Wolff. Captains and Dental Surgeons retaining the rank of Captain: J. Figdor, S. M. Macpherson, C. B. Woolf.

SPECIAL RESERVE OF OFFICERS.

Capt. T. G. Fleming relinquishes the acting rank of Major.

Capts. F. E. Feilden and J. I. Watson relinquish their commissions and retain the rank of Captain.

TERRITORIAL FORCE.

Lieut.-Col. (Bt. Col.) W. Howorth, T.D., resigns his commission and retains his rank, with permission to wear the prescribed uniform.

Major A. Carless resigns his commission and is granted the rank of Colonel.

Major (Bt. Lt.-Col.) (acting Col.) H. A. Leebody relinquishes the acting rank of Colonel on vacating the appointment of Assistant Director of Medical Services.

Capt. (Bt. Major) C. W. Rowntree resigns his commission and retains the rank of Captain and Brevet Major.

Capt. R. Burgess resigns his commission and is granted the rank of Lieutenant-Colonel.

Capts. C. C. Philip, T. P. Edwards, and C. Jephcott resign their commissions and retain the rank of Captain.

Major Sir A. W. Mayo-Robson, 3rd London General Hospital, and Major A. Carless, 4th London General Hospital, are restored to the establishment on ceasing to hold temporary commissions in the Army Medical Service.

Sanitary Service: Capt. L. R. Tosswill to be Major.

TERRITORIAL FORCE RESERVE.

Lieut.-Col. (Bt. Col.) H. W. Webber resigns his commission and retains his rank.

ROYAL AIR FORCE.

Capts. H. J. Leviseur and W. G. Robertson are transferred to the unemployed list.

INDIAN MEDICAL SERVICE.

Lieut. P. J. Walsh (since deceased) to be Captain.

The King has approved of the retirement of Major F. N. White, C.I.E.

ROTUNDA HOSPITAL, DUBLIN, VERSUS THE INCOME-TAX COMMISSIONERS.—Judgment has now been given in the House of Lords in a lawsuit between the Commissioners of Inland Revenue and the governors of the Rotunda Hospital. The hospital has had since its foundation, as part of the hospital buildings, a suite of entertainment rooms from the rent or hirings of which it has drawn a substantial income. For many years in the early history of the hospital the rooms were the fashionable assembly rooms of Dublin, and until some 20 years ago they were commonly used for balls and concerts of high standard. The ingenious Bartholomew Mosse, who founded the hospital, had looked to this source for an important part of the income of his great foundation. A year or two ago the income-tax authorities demanded that the governors should pay income-tax under Schedule D on earnings of the entertainment rooms. The claim was resisted, and the Irish courts in several judgments supported the position taken by the governors of the hospital. The House of Lords has now reversed these decisions, and has given judgment in favour of the income-tax authorities.

Parliamentary Intelligence.

HOUSE OF COMMONS.

TUESDAY, MAY 11TH.

Back Pay in the Royal Air Force Medical Service.

Mr. DENNIS HERBERT asked the Secretary for War and Air if he was aware that great hardship and much discontent was being caused among members of the medical service of the Royal Air Force by the delay in payment of back pay, now many months overdue; and if he would take steps to see that these overdue payments should be made at once.—Mr. CHURCHILL replied: The arrangements for remustering Royal Air Force medical personnel to the new rates of pay have been under preparation for some time and the necessary order was issued last week.

Vaccination Statistics.

Mr. WILLIAM THORNE asked the Minister of Health whether, during the past 10 years, fewer children had been vaccinated in England and Wales than in any previous decade of the statistical history of vaccination; whether, during the same 10 years, there had been fewer small-pox deaths recorded than in any previous decade; and, if so, whether he would give instructions to his department to publish them widely so that the misapprehensions of the position, which were widespread in official medical circles, might be removed.—Dr. ADDISON replied: The answer to the first two parts of the question is in the affirmative. The statistics as regards vaccination and small-pox have been published year by year in the reports of the Local Government Board, and I am not aware of any misapprehension of the position in official medical circles. But I may point out that a consideration of these statistics without regard to other relevant facts may result in a misapprehension of the protective value of vaccination against small-pox. This matter was referred to recently in the Forty-eighth Annual Report of the Local Government Board (Medical Supplement), 1918–19, Cmd. 462.

Medical Students retained in Mesopotamia.

Major GLYN asked the Secretary for War and Air whether War Office Telegram, No. 39,313 of March 19th, 1920, Mob. 2, stated that all non-regular officers were liable to retention beyond April 30th, 1920, irrespective as to whether they did or did not volunteer service; whether in the case of medical students especially whose services were being retained in Mesopotamia, this War Office instruction was a reversal of the policy laid down in a speech delivered by him on Feb. 23rd, in which it was stated that all such officers would be demobilised by the end of April; and whether in these circumstances he would give special consideration to medical students who were desirous of immediately returning home to continue their studies enabling them to qualify for the medical profession.—Mr. CHURCHILL replied: The telegram mentioned stated that non-regular officers may be retained beyond April 30th, 1920, provided that the following conditions were fulfilled: (*a*) They fill an appointment within an authorised establishment; (*b*) no regular officers are available to replace them; (*c*) it is quite impossible to dispense with their services without relief. The telegram also stated that as soon as regular officers are available to replace them all non-regular officers must be demobilised. In my speech on Feb. 23rd last I referred only to the release of conscripts. I would remind the honourable and gallant Member that officers hold their commissions during His Majesty's pleasure. At the same time, every effort has been, and is being, made to replace temporary officers, and I regret that I am unable to take any exceptional action in the case of medical students.

WEDNESDAY, MAY 12TH.

English Medical Officers in India.

Sir W. JOYNSON-HICKS asked the Secretary for India if he could state the number of officers of the Indian Medical Service, native and European, in 1914 and 1919; how many of each race were gazetted in 1919; and what steps he was taking to make the service attractive to English doctors.—Mr. MONTAGU replied: In 1914 the number of officers in the Indian Medical Service was 706 Europeans and 63 Indians. In December, 1919, excluding officers holding temporary commissions, there were 650 Europeans and 80 Indians. During 1919 25 Europeans and 21 Indians were appointed to permanent commissions. In amplification of improvements already sanctioned, I hope to announce at an early date increased rates of pay and pension for the Indian Medical Service. I also recognise that it is essential to improve the facilities for leave and study, but no decision on these points can be effective until recruitment has brought the service nearer to its normal strength.—Sir W. JOYNSON-HICKS: If I put a question in a month's time, will the right honourable gentleman say if he hopes to be able to give the increases and the other arrangements for improving the service?—Mr MONTAGU Yes, I hope so, and if my honourable friend will permit me as soon as a decision has been reached, which, I hope, will be only a matter of a few weeks, then I will let him know

Inter departmental Committee on Tuberculous Soldiers

Major BARKER asked the Minister of Health whether he had yet considered the proposal of the Inter departmental Committee on Tuberculous Soldiers, and whether he could state which of these suggestions was being adopted —Dr ADDISON replied The answer to the first part of the question is in the affirmative The capital grant in aid of the provision of additional sanatorium and hospital accommodation for tuberculosis has been increased to £180 per bed and considerable extensions of the existing accommodation are being made Facilities for the training in suitable occupations of ex Service men suffering from tuberculosis are in course of being provided at existing sanatoriums at an estimated cost of £250,000, and a scheme for the provision of village settlements for these men and their families has been worked out, and is now under consideration by the departments concerned

Maternity and Child Welfare

Mr WATERSON asked the Minister of Health if he was aware that many municipal authorities found it impossible to develop the work of maternity and child welfare as it ought to be developed because of the heavy financial burden it entailed, and, under such circumstances, could he make any recommendations to the Government for financial assistance to carry out a national obligation, and from which the State would benefit —Dr ADDISON replied The Government already distribute through my department a grant of half the expenditure of local authorities and voluntary agencies on maternity and child welfare

Hospital Transport in Egypt

Mr RUPERT GWYNNE asked the Secretary for War whether he was aware that a number of officers and men medically boarded for transfer to the United Kingdom after several years' service abroad were being retained in Egypt because no hospital ship was available to transport them, and that owing to the hot weather prevailing in Egypt at the present time their health was suffering and some of them might die in consequence of the delay, whether, while means could not be found to transport our British sick to the United Kingdom, a hospital ship was being used to repatriate Turkish prisoners from Egypt to Turkey, and other hospital ships to transport Russian refugees, and whether he would see that priority was given to our men suffering from the climate, and that arrangements were made for their immediate removal —Sir A WILLIAMSON (Financial Secretary to the War Office) replied No invalids have been held back in Egypt owing to a hospital ship not being available A hospital ship is allotted permanently for the evacuation to the United Kingdom of invalids from the Mediterranean garrisons, and is dispatched to the United Kingdom whenever the number of invalids warrants a sailing This ship has been used for the conveyance of sick Turkish prisoners of war from Egypt to Turkey between its voyages to the United Kingdom, but I am advised that it has only been employed in this manner when the number of British invalids for transportation to the United Kingdom did not warrant its immediate return to the United Kingdom, and that its use on this service has in no way delayed the evacuation of British invalids —Mr GWYNNE Is the right honourable gentleman aware that at present there are men urgently waiting to come home, and will he give orders for a ship to bring these men home at once?—Sir A WILLIAMSON I do not think that can be possible Ships can only bring them home when there are enough men to form a shipload We cannot send a ship for 20 or 30 men —Mr GWYNNE Does the right honourable gentleman mean that men who have served four or five years should be left out there to die rather than bring them back home?—Sir A WILLIAMSON No Sir, that would be quite an incorrect representation of the case A ship is sent whenever there are enough men to bring home The intervals are not so long as the honourable Member suggests —Mr GWYNNE How many dying men are enough to justify sending a ship? —No answer was given —Earl WINTERTON Is the right honourable gentleman aware that there are a large number of passengers who are coming home on these ships now who could be taken off and these invalids put on board? Is he aware that men out in Egypt who have been ordered to be sent home two or three years ago have not yet been sent home?—Sir A WILLIAMSON I am not aware that passengers are brought in hospital ships I think that the hospital ships are confined to hospital purposes If the suggestion is that that is not so I will inquire into the matter —Mr GWYNNE Will the right honourable gentleman inquire into the cases of the men that are out there now?—Sir A WILLIAMSON Yes

Emergency Coal-supplies in Cases of Illness

Mr JEPHCOTT asked the President of the Board of Trade whether he was aware that recently in one family in Ashton under Lyne three children died in the course of a week after suffering from measles, and that it was believed the deaths were partly attributable to lack of warmth through the shortage of coal, if he had any information that equally serious results were occasionally occurring throughout the country, and whether a more abundant distribution of household coal could be rendered possible by reduced exports or other means —Mr BRIDGEMAN (Parliamentary Secretary to the Board of Trade) replied I have no information which supports the suggestion that deaths in this country have been directly caused by shortage of coal, but it would be a matter for great regret if such shortage had been a contributory cause It is a rule that any person who can obtain a medical certificate that coal is needed in a case of illness should be entitled to obtain from a merchant a supply of emergency coal forthwith As I have already informed the House on several previous occasions it has been the policy of the Government to ensure home supplies before allowing export of coal

THURSDAY, MAY 13TH

War Gratuity to Nursing Sisters

Captain THORPE asked the Secretary of State whether there was any reason why the nursing sisters employed at the Nell Lane Military Hospital, West Didsbury, Manchester, should not be paid their war gratuities, and whether he would authorise the immediate payment of gratuities to all nurses who were duly qualified to receive them —Sir A WILLIAMSON replied The Guardians of Manchester Union by whom the nurses in question were employed, have been invited to pay the gratuities due on behalf of the War Department but prefer not to do so Steps are being taken to make payment direct

FRIDAY, MAY 14TH

National Health Insurance Bill Removal from the Panel

The House considered the National Health Insurance Bill as amended in Standing Committee

Captain ELLIOT moved a new clause providing that —

> (1) Any medical practitioner aggrieved by a decision of the Minister or of any special body through which the powers and duties of the Minister, under Section 15 Subsection (2) (b), of the Act of 1911, are exercised, to remove his name from any list of medical practitioners may appeal against the decision to the High Court within the time and in the manner and on the conditions directed by the rules of court (2) The cost of any such appeal shall be in the discretion of the court, and no appeal shall be allowed from any order or decision of the court in any such appeal

He said that this was a right granted to medical practitioners in the 1911 Act which was apparently being taken away from them under this Act If they were struck off the panel they had a right of appeal under Subsection 15 (b) of the 1911 Act All the right of appeal they had now was to the Minister of Health If a medical practitioner was struck off the panel he was debarred from the treatment of what was already a majority of the population of the kingdom, and what would, if the dependents were brought within the scheme of the Act, become an overwhelming majority of the people The medical profession did not consider it was fair that the bureaucracy should have this tremendous power over a medical practitioner, on the ground first that it would lead to a stereotyping of medical practice Nobody would risk embarking on some individual line of treatment if he knew that any failure of that treatment would be brought before a committee of what were after all his trade competitors In this case the bureaucracy was extending its power over the ordinary surgeon A man who had the right to enrol his name on the panel of doctors should not have his name removed without at least a chance to appeal to the courts of law —Lieutenant Colonel FREMANTLE seconded the new clause He said that there was a tendency for certain members of the profession to say, "We will not practise under these conditions We will have nothing to do with this panel practice" That was a bad condition for any Government service to get into He had a high opinion of his profession and of the Minister of Health who was the judge in this matter, but thought it was wrong that medical men should be judged in a matter like this by such a court as was suggested —Dr ADDISON said the Bill did not extend the power of the bureaucracy —Captain ELLIOT said that the Minister was a new Minister of the Crown, and here was a new bureaucracy —Dr ADDISON said that there was no word in the Bill at all which related to the conditions of the removal of the medical man from the panel The statement therefore that there was in this Bill an extension of the power of the bureaucracy was inaccurate *in toto* When a complaint was made under the original Act if a medical man was to be removed from the panel it had to be proved that he was doing something which was prejudicial to the efficiency of the service, and it had to be a very grave matter. In the next place, the case had to go before the Finance Committee, which was a lay body, not a body of jealous fellow medical men.—Colonel FREMANTLE: Are these words true, "This will apply only after an inquiry by his own professional brethren in the first place"?—Dr. ADDISON said that before the Insurance Committee stated their case they referred it to the Medical Committee to see if there was a case to be stated. But the Medical Committee did not judge the matter in any way at all. If there was a case at all it went to a tribunal set up in the original Act, consisting of two medical men who were experts not in the man's own area, and presided over by a barrister or solicitor. So that the jealous fellow practitioner did not appear. That body now reported to the Ministry of Health instead of to the Insurance Commissioners, who had now been absorbed in the new Ministry. There was nothing to compel a medical man to come off the panel. But Parliament never intended, he was sure, that there should be created a statutory vested interest. He had been Minister of Health for more than a year and had never had a single case come up to him yet. A case had to be very grave before it reached the Minister at all. This was a claim which had been practically condemned, and, if adopted, it would be copied in every other department, and would be most prejudicial to the interests of the public service. The medical men knew that they were very fairly treated indeed, and there was every facility for their case being inquired into.—Dr. MURRAY supported the amendment.—Major BARNES thought that the right honourable gentleman might set a good example to the rest of the Government by yielding the point.—Mr. ROBERTS thought that members of the medical profession were quite capable of looking after themselves and safeguarding themselves against injustice. As no power was now being withheld, and as no injustice as far as they could ascertain had yet arisen, a dangerous precedent would be set up if this amendment were passed.—Major FARQUHARSON said if it should happen that a trade competitor were serving upon the Committee when a doctor was appearing to answer a charge, he had sufficient faith in his profession to feel sure that such a person would withdraw from the inquiry. If the Minister in the exercise of his Ministerial capacity ever did a thing or caused a condition to arise over which a doctor would be "aggrieved" in the technical sense of the 1911 Act, the proper place to deal with him was in that House.—Captain ELLIOT said that it was impossible to legislate under these conditions—it was now after 1 o'clock in the morning—and he therefore withdrew his amendment.—After further discussion the proposed new clause was negatived.

Discontinuance of Sanatorium Benefit.

Lieutenant Commander KENWORTHY moved to omit Clause 4 of the Bill which provides for the discontinuance of the administration of sanatorium benefit under the National Health Insurance Act, except in Ireland.—Dr. ADDISON, in opposing the amendment, explained that cases of tuberculosis were in future to be dealt with by one authority and claimed that the new arrangements would benefit working men. They desired that the treatment of tuberculosis should be extended where necessary. The whole scheme of which this was designed to be a part was to secure that one authority was competent to deal with all stages of tuberculosis. They only proposed to transfer the service from one set of people to another, but they proposed that the authorities should have added powers and added funds to perform this service for the benefit of the insured person.—Mr. MYERS thought that one of the most tragic features of the public health administration of the country was the complete inability of the medical profession of this country to effect an early diagnosis of tuberculosis, or at least their failure to disclose the fact that they had made the discovery. A year or two ago he attended an important conference in London addressed by Professor Beraneck, of Neuchâtel, a tuberculosis specialist from Berlin, and Sir Robert Philip, of Edinburgh. These medical experts set forth the fact that no medical man ought to administer tuberculin unless he was fully qualified in its elements. He would encourage early diagnosis of the disease on the part of the medical man, and as soon as diagnosis had been effected he would take the treatment out of the hands of the ordinary panel doctor absolutely and put it into the hands of a specific expert authority.—Dr. MURRAY said he did not agree with the aspersions cast upon the general practitioner. He would much prefer to be in the hands of the average general practitioner if he suffered from tuberculosis than in those of the best so-called expert in the country.—The amendment was negatived.

Dr. ADDISON moved to insert a new subsection to provide that the medical men on the panel should be authorised to ask the Insurance Committees to allow up to 2*d*. instead of 1*d*. per insured person to be allotted towards the administrative expenses of committees elected by medical practitioners and persons supplying drugs and medicines. It was their money, and it came out of their funds and not out of the general funds of the Act.—The amendment was agreed to.

The report stage of the Bill was concluded, and the Bill was read a third time.

Blind Persons Bill.

Dr. ADDISON, in moving the second reading of the Blind Persons Bill, said that the Bill was the result of a pledge given to the House recently during the discussion on a private Member's Bill on the same subject. In consequence of the very useful work of the Advisory Committee on the Blind a complete survey had been made of existing agencies for dealing with the blind, gaps in the present facilities had been discovered, and it had been possible to frame this Bill on sound lines. Steps had been taken to increase the preventive services against blindness, and Mr. G. Barnes had undertaken to preside over an important inquiry in regard to that matter. It was known that blindness in infancy was associated in a large degree with one form of venereal disease. Apart from preventive services, there was need that facilities should be provided for blind persons to learn some trade in order to earn a livelihood, and the Bill would enable local authorities to provide and maintain or to contribute towards the provision and maintenance of workshops, hostels, homes, or other places for the reception of blind persons within or without their area, and to combine to make further arrangements for promoting the welfare of the blind. The amount of the Government grant towards the expenses would be increased to 50 per cent. Provision would also be made by the measure that those persons who were so blind as to be unable to perform any work, and were 50 years of age, should be entitled to receive the pension to which, in ordinary circumstances, they would become entitled under the Old Age Pensions Act on reaching the age of 70 years. The Bill would render the War Charities Act, 1916, applicable to charities for the blind, and make it necessary that those charities should be registered and approved.—Mr. NEIL MACLEAN, speaking for the Labour Party, did not regard the Bill as adequate to meet the circumstances of the blind men. If the sympathies of the House were to be translated into benefits for blind people the Bill must be compulsory and not permissive in character. The Labour Party would not retard the second reading of the Bill, but when the Committee stage was reached they would do their best to remodel and strengthen it.—The Bill was read a second time.

MONDAY, MAY 17TH.

British-made Morphia.

Mr. GILBERT asked the President of the Board of Trade if he would state to which countries British-made morphia was exported during the year 1919, the amount and value of the morphia so exported to each country, what precautions were taken to secure the restriction of such morphia to medical or legitimate purposes; how many factories for morphia there were in Great Britain; and whether they were controlled and supervised in accordance with the provisions of the International Opium Convention of 1912.—Sir ROBERT HORNE replied: I am sending the honourable Member a statement of the recorded exports of morphia which will be printed in the official report, but I regret that those figures do not include exports through the post, particulars of which are not available. Licences are granted by the Board of Trade on the basis of the estimated legitimate requirements of the country of destination, and an arrangement is already in force in regard to certain destinations, and will, I hope, be extended to others—under which an application for a licence must be accompanied by a certificate from the appropriate Government authority in the country of destination that the drug is required exclusively for legitimate medicinal or scientific purposes, and will not be re-exported. I am aware of only three factories in Great Britain producing morphia. When the Dangerous Drugs Bill at present before the House is passed into law control over such factories will be exercised in accordance with the provisions of the Opium Convention.—Sir J. D. REES: Does the Government intend or endeavour to control morphia all over the world?—Sir R. HORNE: We cannot hope to accomplish such a vast undertaking.—Sir J. D. REES: But does not my right honourable friend's answer imply that we are to control the morphia from British factories in all parts of the world?—Sir R. HORNE: From British factories, certainly.

Vaccination and Small-pox.

Mr. WATERSON asked the Minister of Health if, in view of the opinion expressed by Dr. R. J. Reece on page 92 of the Medical Supplement of the Forty-eighth Annual Report of the Local Government Board that at any isolation hospital which was likely to receive small-pox cases the staff should always be protected beforehand by efficient revaccination, he would state what constituted an efficient revaccination, and how long it might be presumed to remain efficient; and whether, and if so what, steps had been taken by the Ministry of Health to inform those in charge of isolation hospitals as to the views of the Ministry on the subject.—Dr. Addison replied: I am advised that efficient revaccination should result in the appearance of either vesicles, normal or modified, or papules surrounded by areolæ. If no such result is obtained, and some years have elapsed since the last successful vaccination or revaccination, the operation should be repeated if the person is especially liable to exposure to small-pox infection. A successful revaccination ordinarily protects those exposed to infection for many years against the occurrence of severe or fatal small-pox, and for a shorter period against the occurrence of a mild or modified attack. I am, however, advised that persons whose duties at isolation hospitals render them especially liable to exposure to small-pox infection should renew their protection by vaccination at least every ten years. These views are in accordance with generally accepted medical opinion, and I scarcely think it necessary to communicate them to those in charge of isolation hospitals.

Medical Services in the Navy.

The House went into Committee on the Navy Estimates, Sir E. Cornwall in the chair.

On a vote of £677,300 for the expenses of medical services, including the cost of medical establishments at home and abroad, Sir D. Maclean asked for further explanation. They ought to be told why, while the numbers of the navy generally had gone down, the medical service showed no corresponding reduction, either in numbers or cost.—Sir J. Craig said it was impossible suddenly to drop from war conditions to peace conditions without going through a transition stage. He admitted, however, that something might be done to make the estimate a little clearer and he would promise to meet Sir Donald Maclean's wishes in regard to that.—Sir D. Maclean urged that the House should be given further information before the Report Stage.—Sir J. Craig said that this vote covered home and abroad shore services which were normally the same and not affected by the large reduction in the navy. He would, however, be glad to give any further information that was possible.—The vote was agreed to.

Medical News.

Royal College of Physicians of London.—An extraordinary Comitia of the Royal College of Physicians of London was held on May 13th, Sir Norman Moore, the President, being in the chair.—On the nomination of the President Dr. James Taylor was appointed to represent the College on a committee being formed by the Minister of Health to investigate the causes of blindness and defective vision. The Members elected to the Fellowship at the Comitia held on April 29th (see THE LANCET, May 8th) were admitted. Diplomas in Public Health and Diplomas in Tropical Medicine and Hygiene were granted, jointly with the Royal College of Surgeons, to candidates whose names will be found in the pass-list given below.—The President then dissolved the Comitia.

Royal College of Surgeons of England.—An ordinary meeting of the Council was held on May 13th, Sir George Makins, the President, being in the chair.—Professor Alexis Thomson was introduced, and after signing the by-laws and making the required declaration was admitted a Fellow of the College.—It was resolved to issue diplomas of Membership to 70 successful candidates.—In accordance with a report from the Court of Examiners it was resolved that the Council agreed with the Anatomical Society of Great Britain and Ireland in deciding not to depart from the old nomenclature for use in anatomical text-books and by medical men in general.—It was resolved to grant jointly with the Royal College of Physicians of London Diplomas in Public Health to nine successful candidates, and Diplomas in Tropical Medicine and Hygiene to 13 successful candidates.—The President reported that a letter had been received from the Lord Weardale, Chairman of the Committee for the "Save the Children Fund" of 26, Golden-square, W. 1, soliciting the help of Fellows and Members of the College, and stating that under their "professional assistance" plan any contribution made through the College would be devoted exclusively to feeding and tending children whose parents are surgeons. The President regretted that there were no corporate funds available from which a contribution could be made, but took the opportunity of calling the attention of Fellows and Members of the College to the appeal.—The President reported that he had sent a telegram of congratulation to Dr. Logie, M.D. Edin., 1842, L.R.C.S. Edin., 1841, on the occasion of the hundredth anniversary of the date of his birth on May 11th.

Royal Colleges of Physicians of London and Surgeons of England.—At a meeting of Comitia of the Royal College of Physicians on April 29th and of the Council of the Royal College of Surgeons on May 13th diplomas of L.R.C.P. and M.R.C.S. were respectively conferred upon the following candidates who have passed the Final Examination in Medicine, Surgery, and Midwifery of the Conjoint Board, and have complied with the by-laws of each College:—

William Eric Hallamore Banks, Cambridge Univ. and St. Bart.'s Hosp.; William George Barnard, London Hosp.; Benjamin Faltas Behman, Univ. Coll. Hosp.; Julia Bell, Royal Free and St. Mary's Hosps.; Walter Bowler, Liverpool Univ.; Harold Currie Brayshaw, Edinburgh Univ; Osmond Hayman Brown, Charing Cross Hosp.; William Mark Brown, Guy's Hosp.; Kenneth Entwisle Bury, St. Thomas's Hosp.; John William Chadwick, Manchester Univ.; Isabel Martha Collier, Liverpool Univ.; John Joseph Philip de Chaumont, Charing Cross Hosp.; Purshottam Mulchand Desai, Bombay Univ. and London Hosp.; Kenneth Henry Doouss, St. Bart.'s Hosp.; Edward Ernest Elt, Charing Cross Hosp.; Roger Henry Emmett, Cambridge Univ. and St. George's Hosp.; Cecil Weldon Empey, London Hosp.; Gerald William Thomas Hunter Fleming, Durham and Charing Cross Hosp.; Louis Francois Regis Charles Laurent Folliet, Paris, Lyons, and Univ. Coll. Hosp.; Richard Kenrick Foulkes, King's Coll. Hosp.; Donald Goddard Garnett, Cambridge Univ. and St. Thomas's Hosp.; Arthur Christopher Vidal Gosset, Cambridge Univ. and St. Thomas's Hosp.; Arthur Edwards Gravelle, King's Coll. Hosp.; Egerton Charles Grey, Guy's Hosp.; Churchill Hector Gunasekara, Cambridge Univ. and Middlesex Hosp.; Edith May Hall, Royal Free Hosp.; Reginald Rowley Halsall, Manchester Univ.; Theodore Handel, King's Coll. Hosp.; Ranald Montagu Handfield-Jones, St. Mary's Hosp.; Tom Robert Ernest Hillier, Middlesex Hosp.; William Vincent Hughes, St. Mary's Hosp.; Donald Hunter, London Hosp.; Frank Carlton Jones, Manchester Univ.; Charles Ainger Kirton, Univ. Coll. Hosp.; Frans Hieronymus Kooy, Groningen Univ.; Wright Lambert, Middlesex Hosp.; George Valentine Chapman Last, Liverpool Univ.; William Alexander Low, St. Thomas's Hosp.; Ernest Lowe and Thomas Clyde McKenzie, Birmingham Univ.; Naguib Makar, St. Thomas's Hosp.; Margaret Ombler Meek, Cambridge Univ. and Charing Cross Hosp.; John Roderick Mitchell, Cambridge Univ. and St. Thomas's Hosp.; Bernard Molloy, Cork and Birmingham Univ.; George Geoffrey Newman, London Hosp.; Ahmed Othman, St. Thomas's Hosp.; Frederick Ferdinand Petersen, London Hosp.; Harold James Alexander Pollard, Cambridge Univ. and St. Bart's Hosp.; Henry Christoffers Powell, Charing Cross Hosp.; Reginald Francis Price, McGill Univ.; Joseph Proujansky, London Hosp.; Thomas Reed, Guy's Hosp.; Owen William Roberts, King's Coll. Hosp.; Isabella McDougall Robertson, Royal Free and St. George's Hosps.; Katherine Jane Shaw, Royal Free Hosp.; Ronald Cunliffe Shaw, Manchester Univ.; William Arthur Merrett Smart, London Hosp.; Harold Edward Smith, Sheffield Univ.; Arthur Twynham Spoor, Cambridge Univ. and St. Thomas's Hosp.; Edward Howard Strange, Cambridge Univ. and St. Bart's Hosp.; Canning Suffern, Cambridge Univ. and St. Thomas's Hosp.; Arthur Walford Taylor, St. Bart.'s Hosp.; James McWilliam Taylor, Western Univ.; Gifford Campion Thornton, Birmingham Univ.; Johan van Rooijen, Amsterdam Univ.; Robert Walter Warrick, Guy's Hosp.; Herbert Edward Williams, London Hosp.; Lucy Wills, Royal Free Hosp.; Joseph Marshall McCaldin Wright, Cambridge Univ. and King's College Hosp.; and Philip Richard Zinn, New York Univ. and Univ. Coll. Hosp.

Diplomas in Public Health were conferred upon the following nine candidates (including one woman) who have passed the requisite examinations:—

Eleanor Bourne, Sydney Univ. and Univ. Coll.; Monamy Aston Cornwall Buckell, Univ. Coll.; John Nairn Dobbie, Glasgow Univ. and Univ. Coll.; Harry Evans, Edinburgh Univ. and Univ. Coll.; George Alfred Duncan Harvey, Dublin and Royal Army Medical Coll.; George Dearden Jameson, Cambridge Univ. and St. Bart.'s Hosp.; William Simpson, St. Bart.'s Hosp.; James Garfit Wallis, London Hosp. and Haslar; and Graham Selby Wilson, Charing Cross Hosp. and Royal Army Medical Coll.

Diplomas in Tropical Medicine and Hygiene were also conferred upon the following 13 candidates from the London School of Tropical Medicine who have passed the requisite examinations:—

Mohamed Khalil Abdel-Khalik, John Scaife Armstrong, Carlo Basile, Alexander Kirkpatrick Cosgrave, Ernest Forrester-Paton, John Augustine Frendo, William Peat Hogg, Thomas Skene Keith, Alexander William Montgomery Harvey, Niels Nedergaard, Harold Edward Whittingham, Man Wong, and Edward Jenner Wood.

Royal College of Physicians of Edinburgh, Royal College of Surgeons of Edinburgh, and Royal Faculty of Physicians and Surgeons of Glasgow.—At a recent examination of the Board the following candidates, having passed the First and Second Examinations, were admitted Diplomates in Public Health:—

Maurice Exell Willcock, Stanley Honeyman, George King, Ian Campbell Mackay, Ralph Johnston Tait, Margaret Allison Alexander, Thomas Macmillan Anderson, Philip Clermont Livingston, James Whitson Kemp Bruce, Herbert Frederick Wilfrid Adams, Edward Fow Fisher, Jessie Alexander MacLaren, Thomas Pearson Herriot, Alexander Bremner, and Andrew Gray Carment.

The President of the French Republic has conferred the honour of Officer of the Legion of Honour on Professor Aldo Castellani, C.M.G., of the London School of Tropical Medicine, for his work on combined typhoid-paratyphoid and enteric-cholera vaccination, and other scientific investigations which have been found of utility to the Allied armies during the war.

University of London.—On May 19th, at a meeting of the Senate, Dr. Russell Wells, the Vice-Chancellor, presiding, it was reported that an offer had been received from the President of the Board of Education of a site for central buildings immediately behind the British Museum.—At the Albert Hall on the same day degrees were presented to a large number of graduates, and in the evening at the Guildhall the graduates dined together, Dr. Russell Wells presiding, the Lord Mayor of London coöperating with him in receiving the guests. Interesting speeches were made by the Lord Chancellor and the President of the Board of Education.

National Council for Combating Venereal Diseases: Appointment of Travelling Commissions.—The National Council has been invited to despatch two commissions under the ægis of the Colonial Office, one travelling east and the other travelling west, so that the benefit of recent experience gained in this country may be made available in our colonies and dependencies. The commissions will each consist of one lay and one medical member, the latter to give post-graduate courses to the local medical faculties under the auspices of the various Colonial Medical Services. The tour is to begin in September and to last from six to eight months. On the western tour the medical commissioner would be required to demonstrate the Wassermann technique; although desirable, this would not be absolutely necessary for the eastern voyage. In addition to more technical medical instruction he would be invited to give addresses to lay audiences. Travelling expenses and a small honorarium are offered. The final selection of medical commissioners has not been made. Names of applicants are now being considered by a special committee, and should be sent to the N.C.C.V.D., 80, Avenue Chambers, London, W.C. 1.

There are still a few vacancies for the post-graduate course to be held by Mr. K. M. Walker at St. Bartholomew's Hospital Clinic on the Diagnosis and Treatment of Venereal Diseases on Thursday afternoons at 5.30 P.M. Any medical practitioner wishing to attend should send his name to the Secretary, N.C.C.V.D., at above address.

Society for the Prevention of Venereal Disease: A Parliamentary Committee.—A deputation of this society, consisting of Lord Willoughby de Broke, Sir W. Arbuthnot Lane, Sir James Crichton-Browne, Mr. Athelstan Rendall, M.P., Mr. W. Wansey Bayly, Miss Norah March, Dr. Jane L. Hawthorne, Dr. A. Mearns Fraser, and Captain W. E. Elliot, M.P., laid the views of the society before some 50 Members of Parliament at the House of Commons on May 12th. After hearing the policy of the society set forth, the Members present resolved to form themselves into a Parliamentary Committee with the object of furthering the aims of the society, more particularly in endeavouring (*a*) to obtain the support, both official and financial, of the Ministry of Health for the society's work; and (*b*) to obtain the repeal of the clause in the Venereal Disease Act, 1917, which forbids a chemist to recommend to the public or to expose for sale approved disinfectants for the prevention of venereal disease.

Manchester Conference on Diseases of the Teeth.—A Congress on the Prevention of Diseases of the Teeth, promoted by the Food Education Society, was held in Manchester from May 13th to 15th to attack "the dental problem, which remains after ten years of the School Medical Service one of the most important, urgent, and difficult." The conference was opened by Sybil, Viscountess Rhondda. Sir William Milligan, who presided, said that the teeth of Jewish children were superior to those of Gentiles, and he suggested that differences of diet might be the cause of this. Professor Adami compared the teeth of people of this country unfavourably with those of Canada, and emphasised the need for such revision of the Dental Act of 1878 as would ensure that only fully qualified persons should be allowed to practise dentistry. He said that 10,000 additional qualified dentists were needed to care properly for the teeth of the country. Dr. Harry Campbell said that the state of our teeth, which were the worst of any nation's, should excite a feeling of shame and humiliation. At least nine-tenths of this dental disease was preventable. Mr. F. M. Holborn characterised pyorrhœa as the commonest disease in this country next to dental caries. Tooth-brushing as generally practised, especially if tooth powders and pastes—so much in use—were driven under the free margin of the gum tended to injure the gum at its junction with the teeth. Used in moderation a toothbrush was harmless, but it should be drawn from the gum towards the teeth to avoid forcing particles beneath the gum. Salt and soap were the safest cleansers. He commended the practice of certain African natives who used a small piece of thin wood to polish the teeth and remove adherent particles. The blind brushing of the teeth from side to side and up and down should be condemned. One speaker considered tolerance and indifference the cause of much disease. "We should make it understood that good teeth are necessary to good form." "Toothless gums are not natural even to age." According to Dr. J. Wheatley, "milk is an excellent food if taken with the proper precautions. If taken late at night without any other food it is the most dangerous food I know."

Medico-Legal Society.—A meeting will be held at 11, Chandos-street, London, W., on Friday, May 28th, at 8.30 P.M., when a paper will be read by Dr. T. H. G. Shore on "Sudden Deaths on Active Service."

Mr. G. Q. Roberts, M.A., secretary to St. Thomas's Hospital, will deliver a lecture on "Old London and the London Hospitals" at the hospital on Friday, May 28th, at 5.15 P.M. Applications for tickets should be made to the Secretary, League of Mercy, 29, Southampton-street, London, W.C. 2.

Royal Institution.—On Tuesday next (May 25th), at 3 o'clock, Major C. E. Inglis begins a course of two lectures at the Royal Institution on the Evolution of Large Bridge Construction; on Thursday (May 27th) Mr. William Archer delivers the first of two lectures on Dreams, with special reference to Psycho-analysis; and on Saturday (May 29th) Professor J. H. Jeans commences a course of two lectures on Recent Revolutions in Physical Science: (1) The Theory of Relativity; (2) the Theory of Quanta. The Friday evening discourse on May 28th will be delivered by Professor W. L. Bragg on Crystal Structure; and on June 4th by Sir Ronald Ross on Science and Poetry.

St. Marylebone General Dispensary: Post-graduate Course on Infant and Child Welfare.—A course of 12 practical demonstrations on the Management and Feeding of Infants and Young Children will be given by Dr. Eric Pritchard to qualified practitioners on Tuesdays and Thursdays at the St. Marylebone General Dispensary, commencing Tuesday, June 1st. Opportunities will be afforded to those attending this course of visiting the Nursery Training School, 1, Wellgarth-road, Golders Green, on Saturday afternoons. Further information and tickets for the course (2 guineas) may be obtained from the Secretary, 77, Welbeck-street, Cavendish-square, London, W. 1.

Post-Graduate Classes at Norwich.—The demonstrations organised during the spring by the honorary medical staff of the Norfolk and Norwich Hospital have been well attended and much appreciated by qualified medical men in the city and neighbourhood. It is proposed to continue the demonstrations during the coming autumn and winter.

Norwich Medico-Chirurgical Society.—A clinical meeting of this society was held at the Norfolk and Norwich Hospital on May 4th, when the following cases and specimens were shown:—Mr. A. J. Blaxland: (*a*) Malignant Papilloma of Appendix causing Intussusception removed from man aged 63 years; (*b*) Sarcoma of Uterus from a woman aged 55 years; (*c*) Right Lobe of Thyroid showing great Parenchymatous Enlargement removed from a youth aged 20 years; (*d*) Left Lobe and Isthmus of Thyroid showing Multiple Cystadenomata removed from a woman aged 48 years. Dr. A. Crook: (1) Sections of Liver from (*a*) patient who died from puerperal eclampsia; (*b*) patient, full term pregnant, who died of acute pneumonia. (2) Specimen of Multiple Polypi of Cervix Uteri removed from a woman aged 61 years. Dr. W. A. Aldred: Specimen of Ruptured Tubal Gestation with Uterine Fibroid. Dr. S. H. Long: A case of Morphœa in a child aged 8 years. Mr. G. Maxted: (*a*) A case of Tumour of Iris in a girl aged 17 years; (*b*) a case of Severe Albuminuric Retinitis in a woman aged 30 years. Mr. Blaxland: A case of Osteochrondritis Juvenilis of Both Hip-joints in a boy aged 13 years (Perthes' disease).

Tuberculosis Sanatoriums for Sussex.—Both the East Sussex and the West Sussex County Councils have taken an important step towards the provision of a sanatorium for tuberculosis. On May 11th the East Sussex authority decided to acquire and adapt Darvell Hall at Robertsbridge at a cost of £23,500. Some 18 months have been expended in finding suitable premises, but the sub-committee entrusted with the work had no hesitation in recommending the Robertsbridge house, together with about 60 acres of land. Local authorities have reported their willingness to enter into agreements with regard to the scheme, and by this coöperation it is believed that the capital expenditure by the County Council will be reduced by about £3000. The Treasury grant of three-fifths of the cost will amount to £14,000. Two days later—on May 13th—the West Sussex authority with the same unanimity ratified a scheme involving the sum of £49,000. The premises and site concerned are Aldingbourne house and park in the delightful

Chichester Goodwood district Here again the finding of a suitable house and grounds had occupied much time The Aldingbourne property includes 600 acres of land, which is to be let to ex Service men as small holdings The proposed institution is to provide 50 beds, and it is estimated that a grant of £180 per bed will be received from the Government The place lends itself to future development by the erection of huts in the grounds, and the Ministry of Health states that other counties might arrange to send patients to fill any vacant beds The county of Sussex is to be congratulated on progressive action

THE King has approved the appointment of the Hon Alexander Campbell, M D, as a Member of the Legislative Council of Newfoundland, and of Dr Wroughton Gerald Heath, senior medical officer, as a Member of the Executive Council of the Presidency of Montserrat

THE Fife Education Authority decided last week to reaffirm the appointment of Robert Arno Krause, M B, Ch B Edin, as their school medical officer Objection had been raised to the appointment on account of Dr Krause's recent German nationality, and the Scottish Board of Health had suggested his replacement Dr Krause, it was stated, had lived in this country since infancy, and was naturalised some years ago

ROYAL MEDICAL BENEVOLENT FUND.—At the last meeting of the Committee, held on Tuesday, May 11th, 25 cases were considered, and £218 8*s* voted to 17 of the applicants The following is a summary of some of the cases relieved —

Widow, aged 59 of lieutenant colonel, R A M C who served in England and India and died in 1905 Applicant had an accident eight years ago and is now suffering from neuritis and her sight is failing, so she is unable to supplement her income by working Has one son, married and only able to contribute £15 a year Has a pension of £90, £1 14*s* from investments £13 from friends making a total income of £119 14*s* Rent £45 10*s* Voted £5 with leave to apply again in six months —Daughter, aged 60, of M R C S Eng who practised at Cardigan and died in 1875 Health very bad through overwork, which was voluntary, in an army canteen She lives with a friend, and they share expenses Applicant is a trained nurse Income from shares £25 from property, £25 Voted £12 in 12 instalments —M R C S Eng, aged 79, widower, who practised at Kingston-on Thames Has two daughters, ages 43 and 41, living at home, the elder as housekeeper, the younger an artist who earns a very precarious living Two other daughters are nurses, and contribute £32 a year each towards the home Other income from investments £120 the capital of which cannot be used Rent and rates £54 9*s* Applicant in a very delicate state of health, as are the two daughters living at home Voted £26 in 12 instalments —Daughter, aged 68 of M R C S Eng who practised in London and Halifax and died when applicant was a child Had an accident a few years ago and is now lame and unable to work Only income an occasional gift from friends Rent 7*s* 6*d* a week for one room Relieved six times £46 Voted £12 in 12 instalments —Daughter, aged 35 of M R C S Eng who practised in Yorkshire and died in 1906 Only income 21*s* a year from investments Suffers from bad health and is now in a nursing home, and her sister has to pay expenses, which she cannot afford to do Applicant quite incapable of work Relieved three times £45 Voted £18 in 12 instalments —Widow, aged 46, of M B Glasg who practised at Sandbank, Argyll, and died in 1910 Has one son, aged 12, at school. Was left unprovided for, and is now making a living by letting rooms, from which she made £168 last year Rent and rates £68 Finds she cannot manage owing to the high cost of living Relieved once, £10 Voted £10 in two instalments

Subscriptions may be sent to the honorary treasurer, Sir Charters Symonds, C B, F R C S, at 11, Chandos street, Cavendish square, London, W 1

THE HOUSING PROBLEM IN BELFAST.—Mr. P. C Cowan, chief engineering inspector of the Irish Local Government Board, opened an inquiry in the City Hall, Belfast, into an application by the Belfast Corporation for a loan of £2,000,000 for the purpose of carrying out a scheme under Part I of the Housing (Ireland) Act, 1919, and Part III of the Housing of the Working Classes Act, 1890; and the proceedings—sometimes very stormy—lasted three days The Housing Committee of the City Council estimates that 5000 houses are now needed, but that 1500 would meet the immediate requirements As only three tenders had been received for demonstration houses the corporation want to attack the problem by direct labour 2260 applications have been made for houses through the town solicitor's department, and the average rent at which the houses were demanded was 6*s* 9*d* per week Owing to the cost of building and the lessened output of labour, the better class of houses cannot be built, the corporation allege, at a rent the working classes will pay, and as a result they recommend, to keep down prices, the erection of terrace, not detached, houses Some of the witnesses thought the corporation were taking too narrow a view of the situation, and urged that the best type of houses should be provided and the cost borne somehow, either by the State, the corporation, or the tenants themselves A great deal of unpleasantness arose because some of the witnesses accused the Local Government Board of impeding the Housing Committee of the Belfast Corporation by red tape, while the inspector denied this and said the Local Government Board had not the information supplied which it required He also found fault with the way Belfast was facing the housing problem, and said that the work of the Belfast Board of Architects was, in his opinion, most disappointing, and he declared that the corporation must submit further and carefully considered plans, so that the Local Government Board could not be accused of failing to do its part in seeing that the money was applied in the best way humanly possible

Commenting on this inquiry, a Belfast correspondent writes Apparently, so far as the housing scheme in Belfast is concerned, things have, as in many parts of England, come to an impasse The Local Government Board wants a form of house which, the practical Belfast man says, cannot be built, unless the occupiers will pay a higher rent than they are prepared to do, and the corporation declines to accept what is believed will be a financial loss, leading to increased taxation It is clear that the Government, the employers, and the Labour Party will have to take a greater share in the financial responsibility of the housing problem

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o clock on the Thursday morning of each week such information for gratuitous publication*

ALLAN, J, M D Edin, has been appointed Lecturer on Public Health, Westminster Hospital Medical School

JOHNSTONE W, M D, B Ch Glasg, D P H Camb, Medical Officer of Health and School Medical Officer City of Peterborough

POOLER H W, M B, Ch B M R C S, L R C P Visiting Medical Officer to Morton District Hospital

PYBUS F C, M S, F R C S, Assistant Surgeon to the Royal Victoria Infirmary, Newcastle-on Tyne

SUTCLIFFE, J, M R C S Eng, L R C P Edin, Resident Medical Superintendent of Cheadle Royal Hospital for Mental Diseases Cheadle Cheshire

SYLK, E, M B Lond, M R C S Eng, House Surgeon at the Great Northern Central Hospital

VAILE T B, M R C S, L R C P, Anæsthetist to the Cancer Hospital, Assistant Anæsthetist to the Italian Hospital House Anæsthetist to the Royal Dental Hospital

St John s Hospital for Diseases of the Skin HANNAY, M G, M D Brux, F R C P Edin and LYNHAM J E A, M D Belf M R C P Lond, Assistant Physicians, RIPMAN, C H, M D Camb M R C P Lond, Clinical Assistant to the Venereal Diseases Department

Certifying Surgeons under the Factory and Workshop Acts F J DOWDALL M B B Ch N U I (Hebden Bridge), METCALFE, B B, M R C S L R C P Lond (Liskeard) HARRIS W J (Shaftesbury) WILLIAMS, R A H, L R C P & S Edin (Waterford), ROBERTS, E H, M B, B S Lond (Menai Bridge), MONTGOMERY, A W M B, B S R U I (Kingston), WOLVERSON, J A L R C P & S Edin, L F P S Glasg (Wolverhampton)

Vacancies.

For further information refer to the advertisement columns

Bath, Royal Mineral Water Hospital —Res M O £250
Belgrave Hospital for Children, Clapham road, S W —Hon Radiographer
Bethlem Royal Hospital Lambeth road, S E —Senior Asst P £600
Birmingham General Hospital —H S and Cas H S £100
Birmingham Union Dudley road Hospital —Res Asst M O £365
Birmingham, Yardley-road Sanatorium and Anti tuberculosis Centre —Second and Third Asst Res M O s £450 and £400
Bolingbroke Hospital, Wandsworth Common, S W —H S £150.
Bradford Royal Infirmary —H S £200
Brighton Royal Sussex County Hospital —Jun H S £130
British Home and Hospital for Incurables, Streatham, S W —M O £150
Bury St Edmunds West Suffolk General Hospital —H S £200
Canning Town Women s Settlement Hospital Balaam street, Plaistow, E —Female Res M O £150
Carlisle Cumberland Infirmary —H P £250
City of London Hospital for Diseases of the Chest, Victoria Park, E —H P £100
Deptford Metropolitan Borough —Asst M O H and Tuberc O £600
Derby County Borough Education Committee —School Dentist £450
Doncaster Royal Infirmary and Dispensary —Asst H S £225
Dorset County Council —Asst County M O £500
Durham County Council Maternity and Child Welfare —Female Asst Welfare M O £500
Egyptian Government School of Medicine —Med Registrar L E 600
Elizabeth Garrett Anderson Hospital, Euston road, N W —Female Clin Assts
Great Northern Central Hospital Holloway road London, N —Res M O £250
Guy s Hospital, S E —Female Clin Asst 1 guinea per session
Halifax Royal Infirmary —H S £200

Hull Royal Infirmary.—Sen. H.S. £200. Asst. H.S. £150. Asst. V.D. Officer and Cas. £250.

Ipswich County Borough.—Asst. M.O.H. £500.

Italian Hospital.—H.S. £150.

Johannesburg, South African School of Mines.—Prof. of Phar. £1000. Also Professorships of Med., Surg., and Obstet. £750 each.

Kirkburton, Storthes Hall Asylum, near Huddersfield.—Asst. M.O. £400.

Lancashire County Council.—Two Asst. Disp. Tuberc. O.'s. £700.

Leamington Spa, Warneford, Leamington, and South Warwickshire General Hospital.—H.P. and H.S. £200 each.

Leeds Public Dispensary.—Res. M.O. £200.

London Temperance Hospital, Hampstead-road, N.W.—Cas. O. £200.

Maidstone, Kent County Ophthalmic Hospital.—H.S. £300.

Manchester Children's Hospital, Pendlebury, near Manchester.—Res. M.O. £150.

Manchester City.—M.O. £450.

Manchester Royal Infirmary.—H.S's.

Metropolitan Ear, Nose, and Throat Hospital.—Two Anæsth.

Middlesbrough, North Ormesby Hospital.—Asst. H.S. £200.

Miller General Hospital for South-East London, Greenwich-road, S.E.—M.O. X ray Dept. £75. Also Hon. Asst. Ophth. S.

National Dental Hospital, Great Portland-street, W.—Hon. Anæsth.

Newcastle-upon-Tyne City and County.—Maternity and Child Welfare M.O. £700.

Newcastle-upon-Tyne, Royal Victoria Infirmary.—Anæsth.

Northampton General Hospital.—H.S. and H.P. £200 each.

Nottingham General Hospital.—H.P. Also Cas. H.S. £200 each.

Reading, Berkshire Education Committee.—Asst. Med. Inspector of Schools. £500. Sch. Dent. £450.

Reading, Royal Berkshire Hospital.—H.S. £200.

Rochdale Infirmary and Dispensary.—Jun. H.S. £125.

Rotherham Hospital.—Jun. H.S. £150.

Royal Free Hospital, Gray's Inn-road, W.C.—Cas. O. £100.

Ryde, Royal Isle of Wight County Hospital.—Locum Tenens. £2 2*s.* per session. Also vacancy on Honorary Medical Staff.

Saint Pancras House and South Infirmary, King's-road and Pancras-road, N.W.—Asst. M.O. £300.

St. Peter's Hospital for Stone, &c., Henrietta-street, Covent Garden, W.C.—Jun. H.S. £75.

Sheffield, Jessop Hospital for Women.—Jun. H.S.

Sheffield Royal Hospital.—Cas. O. and Asst. Cas. O. £150 each.

Sheffield Royal Infirmary.—H.P. and H.S. £150 each.

Shirlett, near Much Wenlock, King Edward Memorial Sanatorium.—Res. Med. Supt. £450.

Southampton County Borough.—Sch. Dent. £500.

Southend-on-Sea, Victoria Hospital—H.S. £200.

South London Hospital for Women, South Side, Clapham Common, S.W.—Female H.P. £100. Also Anæsth. 10*s.* 6*s.* per attendance.

Stamford, Rutland, and General Infirmary, Stamford.—H.S. £200.

Swansea County Borough.—Asst. M.O. £500.

Walsall General Hospital.—Female H.S. and Anæsth. £175.

Warwickshire County Council.—Female Asst. County M.O.H. £500.

West Bromwich and District Hospital.—Res. H.S. £200.

West Ham County Borough.—Asst. School M.O. £450.

West Riding County Council.—Asst. County M.O. £650. Two Sch. Med. Inspec. £500.

Wigan Infirmary.—Senior H.S. £250.

Wolverhampton and Staffordshire General Hospital.—H.S. £200.

Worthing, West Sussex and Chichester Joint Education Committee.—Asst. Sch. M.O. £500.

The Chief Inspector of Factories, Home Office, S.W., gives notice of a vacancy for a Certifying Surgeon under the Factory and Workshop Acts at Bollington.

The Home Secretary gives notice of a vacancy for a Medical Referee under the Workmen's Compensation Act, 1906, for the Sheriffdom of Lanark. Applications should reach the Private Secretary, Scottish Office, not later than June 5th.

Births, Marriages, and Deaths.

BIRTHS.

CASEMENT.—On May 11th, in Dublin, the wife of Major F. Casement, D.S.O., R.A.M.C., of a son.

CRAWFORD.—At the Claremont Nursing Home, Glasgow, on 15th May, to Dr. and Mrs. A. Muir Crawford, 10, Queen's-crescent, W., a son.

DEW.—On May 12th, at Rosetta, Horsham, Marion (née Johnston), R.R.C., wife of J. Wescott Dew, M.C., M.B., B.C., of a son.

DORMER.—On May 13th, at Charles-street, Berkeley-square, W., the wife of Captain E. H. Dormer, of a son.

NORMAN.—On May 5th, at Eastwood, Strawberry Hill, Middlesex, the wife of N. F. Norman, B.A. Cantab., M.R.C.S., L.R.C.P., of a daughter.

SAUNDERS.—On May 11th, at Pembroke-street, Pembroke Dock, the wife of Dr. E. A. Saunders, jun., of a son.

DEATHS.

BLOUNT.—On May 14th, suddenly, at Lawrence-road, Hove, Arthur Blount Blount, M.R.C.S. Eng., L.R.C.P. Edin., L.S.A., aged 61.

EAGER.—On Tuesday, May 11th, at St. Aubyns, Woodbridge, Suffolk, Wilson Eager, M.R.C.S., L.R.C.P., late Superintendent of St. Audry's Mental Hospital, Melton, Suffolk, aged 75.

PACKMAN.—On May 17th, at Trimworth-road, Folkestone, Augustus T. Vance Packman, M.R.C.S., L.S.A., in his 81st year.

TREVES.—On May 18th, at Gloucester-terrace, W., Wilfrid Warwick Treves, O.B.E., B.A., M.B., B.C. Cantab., F.R.C.S., R.A.M.C.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Thursday, May 27th.

UROLOGY: at 8.30 P.M.

Paper:

Sir Peter Freyer (President of the Section): Modern Progress in Urinary Surgery.

Friday, May 28th.

STUDY OF DISEASE IN CHILDREN (Hon. Secretaries—E. A. Cockayne, H. C. Cameron, C. P. Lapage): at 4.30 P.M.

Annual General Meeting—Election of Officers and Council for 1920–1921.

Exhibition of Cases:

Members who wish to show cases are requested to send particulars to Dr. A. Cockayne, 65, Westbourne-terrace, W.2.

EPIDEMIOLOGY AND STATE MEDICINE (Hon. Secretaries—William Butler, Major Greenwood): at 8.30 P.M.

Annual General Meeting—Election of Officers and Council for 1920–1921.

Paper:

Dr. Percival Hartley and Professor C. J. Martin, F.R.S.: The Apparent Rate of Disappearance of Diphtheric Bacilli from the Throat after an Attack of the Disease.

Members wishing to dine together before the Meeting (Welbeck Palace Hotel, 7 P.M.) are requested to communicate with Dr. Major Greenwood, Lister Institute, Chelsea Gardens, S.W.1, not later than May 26th.

MEDICO-LEGAL SOCIETY, 11, Chandos-street, Cavendish-square, W.

FRIDAY, May 28th.—8.30 P.M., *Paper*:—Dr. T. H. G. Shore: Sudden Deaths on Active Service. Dr. W. M. Fairlie will show a Specimen of a Suicidal Cut Throat.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.

TUESDAY, May 25th.—10 A.M., Dr. D. Robinson: Gynæcological Operations. 5 P.M., Mr. T. Gray: Ulceration of the Stomach.

WEDNESDAY.—10 A.M., Dr. A. Saunders: Medical Diseases of Children. 2 P.M., Dr. Morton: X Ray Department.

THURSDAY.—2 P.M., Mr. B. Harman: Eye Department. 3 P.M., Mr. Baldwin: Practical Surgery.

FRIDAY.—10 A.M., Mr. Steadman: Dental Department. 5 P.M., Sir Robert Armstrong-Jones: Mental Disease. (Lecture III.)

SATURDAY.—12 noon: Mr. Sinclair: Surgical Anatomy of the Abdomen. 2 P.M., Dr. Owen: Medical Out-patients.

Daily:—10 A.M., Ward Visits. 2 P.M., In-patient and Out-patient Clinics and Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY, May 24th.—2.30 P.M., Mr. J. B. Banister: Gynæcological.

TUESDAY.—9.45 A.M., Lieut.-Col. R. H. Elliot: Selected Eye Cases and Operations. 2.15 P.M., Selected Cases:—Mr. J. Howell Evans: Catheters—Uses and Methods of Use. 3.15 P.M., Dr. J. Oliver: The Age Incidence of Some Cutaneous Disorders. 4.30 P.M., Lecture:—Dr. Manson-Bahr, D.S.O.: The Diagnosis of Fevers, with Special Reference to those of the Tropics and Sub-tropics.

WEDNESDAY.—2.30 P.M., Dr. W. J. Oliver: Dermatological.

THURSDAY.—2.30 P.M., Mr. N. Fleming: Eye Cases. Dr. J. Metcalfe: Radiology.

FRIDAY.—2.30 P.M., Dr. C. G. Sundell: Diseases of Children.

SATURDAY.—3 P.M., Mr. Carson: Selected Surgical Cases.

Daily:—2.30 P.M., Operations, Medical and Surgical Clinics, &c.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C. 1.

MEDICAL SCHOOL.

MONDAY, May 24th.—Whit Monday.

TUESDAY, May 25th.—2–3.30 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Dr. Greenfield: Cerebro-Spinal Fluid.

WEDNESDAY, May 26th.—2 P.M., Mr. Armour: Surgical Treatment of Tumours of the Spinal Cord. (I.) 3.15 P.M., Mr. Scott: The Treatment of Meniére's Disease.

THURSDAY, May 27th.—2–3.30 P.M., Out-patient Clinic: Dr. Farquhar Buzzard. 3.30 P.M., Dr. Aldren Turner: Demonstration of Ward Cases.

FRIDAY, May 28th.—2–3.30 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Dr. Greenfield: Cerebro-Spinal Fluid.

Fee for Post-Graduate Course £7 7*s.* C. M. HINDS HOWELL, Dean.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.

Special Post-Graduate Courses in Diseases of Children, illustrated by cases, specimens, and radiograms.

1.—Dr. F. Langmead: Disorders of the Ductless Glands in Children (in the Museum)—

TUESDAY, May 25th, AND FRIDAY.—11.30 A.M., Lecture V., Disorders of the Thymus Gland. Lymphatism. Lecture VI., Infantilism.

5.—Mr. A. T. Pitts: The Pathology, Results, and Treatment of Dental Sepsis in Children (in the Out-patient Department)—

WEDNESDAY, May 26th.—4 P.M., Lecture II., The Local and General Results of Dental Sepsis.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON).

A Course of Post-Graduate Lectures on Syphilis is being given by various members of the staff of King's College Hospital during the present year.

FRIDAY, May 28th.—9.15 P.M., Dr. J. C. Briscoe: Syphilis in Medical Practice (Visceral Lesions other than Cardiovascular).

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S W.

TUESDAY, May 25th —2 P M , Dr D Grant Throat Department 2 30 P M , Demonstration —Dr Punch Cases Unsuitable for Hospital Treatment

WEDNESDAY —10 30 A M , Dr Punch Demonstration of Museum Specimens 2 P M , Dr Gosse Cardiographic Department 2 30 P M , Demonstration —Dr Beaumont Cases in Children

THURSDAY —10 30 A M , Dr Burrell Artificial Pneumothorax 2 30 P M , Demonstration —Dr Wingfield Cases in Children

FRIDAY —2 P M , Dr Melville X Ray Department 2 30 P M , Demonstration —Dr Jex Blake Cases in Children

SATURDAY —1 P M , Dr Batty Shaw Special Demonstration in the Out-patient Department

UNIVERSITY OF LONDON

Advanced Lectures in Physiology to Students of the University and others interested in the subject

A Course of Eight Lectures on the Bio-Chemistry of Sterols will be given in the *Physiological Laboratory of the University*, South Kensington, S W

TUESDAY, May 25th —5 P M Lecture II , Mr J A Gardner

UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE POST GRADUATE LECTURES, at the Sheffield Royal Hospital

WEDNESDAY, May 26th —4 P M , Prof A Hall Diagnosis of Nervous Disease (I)

SALFORD ROYAL HOSPITAL AND ANCOATS HOSPITAL POST GRADUATE DEMONSTRATIONS at the two Hospitals alternately

THURSDAY May 27th —4 30 P M , Dr Jenkins On the Collection of Pathological Material for Examination (At Salford Royal Hospital)

Communications, Letters, &c., to the Editor have been received from—

A.—Dr W Allingham Orsett American Public Health Association, Boston, Académie Royale de Médecine de Belgique Secrétaire perpétuel

B —British Waterworks Association, Lond Board of Education, Lond Miss W F Buckley, Lond · Dr H S Banks, Motherwell Mrs C Brereton, Lond Sir J Barr, Liverpool, Prof A E Boycott, Lond Dr R Batten, Lond Col R J Blackham British Italian Commercial Association, Lond , Sec of, Dr A Blackhall Morison, Lond , Dr C Bolduan, Washington

C —Dr S D Clippingdale Lond , Dr F G Crookshank, Lond Mr F R Cave, Bath Sir James Crichton Browne Lond Prof E L Collis, Cardiff Dr R Craik Lond Chelsea Hospital for Women, Lond Messrs J and A Churchill, Lond Chicago School of Sanitary Instruction

D —Dr W Dyson, Manchester Dr T B Davies Lond Dr G K Dickinson, Jersey City

E.—Dr G S Earl, Plymouth, Dr E Emrys Roberts Cardiff

F —Mrs Finlayson, Leeds Dr Fergus, Glasgow Dr Z P Fernandez, Leeds Col F E Fremantle M P , Hatfield, Mr W R Fairbrother, Lond

G —General Medical Council, Lond Registrar of; Mr L M Griffiths, Bristol

H —Messrs William Heinemann (Medical Books), Lond , Dr G R Hall Glastonbury, Mr P M Heath Lond Harrogate Wells and Baths General Manager of Mr J T Henderson Pietermaritzburg

I —Incorporated Institute of Hygiene, Lond Dr E C B Ibotson Corris

J —Dr R Jardine, Glasgow Dr G R Jones Birmingham

K.—Miss A Kenealy, Lond King s College Hospital Medical School Lond

L.—League of Mercy, Lond

M —Mission to Lepers, Lond , Editorial Sec of Mercantile Marine Association, Lond Ministry of Health, Lond Dr H Maclean, Lond Manchester and District Radium Institute Medico-Legal Society, Lond Dr A Macphail, Lond Mr A MacDonald Washington

N —National Safety Council, Chicago North East London Post-Graduate College, National Hospital for the Paralysed and Epileptic Lond Dean of Mr R D Noble, Lond , National Council for Combating Venereal Disease Lond , Sec of

O —Dr J O Conor Buenos Aires Dr F A Osborn Dover

P —Sir Arthur Pearson Lond

R —Royal Medical Benevolent Fund, Lond Dr W C Rivers, Barnsley, Royal Dental Hospital of London, Royal Society Lond Royal Mail Steam Packet Co Lond Dr J D Rolleston, Lond Royal Institution of Great Britain, Lond Dr J Reynolds, Lond , Royal Faculty of Physicians and Surgeons, Glasgow, Sec of Dr S M Ross, Derby

S —Sir A Stanley, Lond , Save the Children Fund, Lond , Scottish Board of Health, Edinburgh Prof W Stirling Manchester Dr E W Scripture, Lond Dr A F Sladden, Swansea Dr E B Sherlock, Lond Society for the Study of Inebriety Lond St Marylebone General Dispensary, Lond Society for the Prevention of Venereal Disease, Lond Hon Sec of

T —Dr W F F Tinley, Sandsend Dr F T Thompson Dr W W C Topley, Lond Dr A H Thompson, Lond Mr O P Turner Hastings

U —Mr S Unwin Lond

V —*Vaccination Enquirer*, Lond

W —Mr R Warren Lond West London Hospital Post Graduate College War Office Publicity Dept , Lond Dr F J Waldo, Lond Dr H M Woodcock, Bromley

Communications relating to the editorial business should be addressed exclusively to the Editor of THE LANCET, 423 Strand, London, W C 2

DR. A C MAGIAN has been awarded the Médaille du Roi Albert for services rendered during the war Last year the Belgian community in Manchester presented him with a testimonial, and King Albert sent him a personal letter of thanks, while he received a silver casket and travelling bag from a number of his medical colleagues associated with the work of the Manchester French Hospital

Notes, Short Comments, and Answers to Correspondents.

COST AND PENALTIES OF CITY SMOKE

THE results of an inquiry into the cost and penalties of city smoke have just been issued by the "Air Pollution Advisory Board of the Manchester City Council" (founded in 1912), under the title "The Black Smoke Tax," and attention is drawn, amongst other matters, to the effects of black smoke on the washing bill It is asserted that the washing bill alone costs £242,705 *more than if the air was* as clean as that of Harrogate, and later, that "it would be difficult to cite any one cause so productive of loss—moral, mental, and material—as the Smoke Evil " Because of the ever present accumulating grime and dirt from smoke a labourer's wife has to spend an hour longer over the family washing in Manchester than if she lived in Harrogate There are in the city 112 616 small houses where the house wives as a rule, do their work single handed "If they all take one hour longer each week to do the washing than they would do if they lived in a clean town, the sum total of time wasted in the course of a year is equivalent to 5 850,000 hours or 668 years This is the penal sentence which the house wives of Manchester who do their washing at home serve each year for black smoke!" *The smoke tax, however, is levied also on buildings, merchandise wall paper, furniture,* clothes curtains gardens and plant life, and almost every object, animate and inanimate, in the city , also on health, as is often all too evident on the personal appearance of the city dweller

The investigation was conducted on lines similar to those adopted in Pittsburgh, U S A , where it was found that *smoke damage amounted to £4 per head of* the population per annum Questionnaires were issued to all sorts of people—architects, householders, hotel proprietors, restaurant keepers, owners of warehouses, works and gardens, and business men Architects estimated that a clean atmosphere would reduce the cost of upkeep of buildings from 20-50 per cent The answers of painters "made it clear that Manchester is a *painter's paradise*"—in a sense quite *different from* the phrase as applied to Paris by Thackeray Window curtains last only half as long in Manchester as in Blackpool The extra protection needed by printed, bleached, and dyed goods in warehouses amounts to a large sum annually Taking it all in all it is computed that black smoke costs Manchester for washing and in damage and deterioration of houses and buildings and goods at least £750 000 *a year more than if the air were as clean and smoke free as that of Harrogate*—i e , about £1 per head of the population of the city

HOW NOT TO GROW

THAT none of us by taking thought can add a cubit to his stature is, we gather from a correspondent who asks us to *let him into the secret of growing at will, a fact that still* bears repetition A growing boy, a shade under the height demanded by the Services, need not give up hope, especially if his chest and general development is poor Breathing exercises and careful physical training will often add the required inch *or more But to hold out similar hope to the* fully grown adult is to deceive him *cruelly If he holds his* knees braced back, his back erect and chin well in, a man makes the most of his inches, and not the most specious professor can add a jot, advertise he never so wisely

Our correspondent, whose height is 66 inches, and who would add a few by reason of the advantage he supposes they would confer, tells us there are many who share his *ambition*, and *not a few* who are *anxious* (for a consideration) to undertake to gratify it *He is hopeful of growing* two or three inches, while admitting that *natural growth* has stopped , the thoroughness of his investigation of ways and means deserves a worthier subject One scheme he has investigated is to thicken all the cartilages of the spine, legs ankles, "&c ," in a few weeks' time by exercise thus stretching out the natural height by several inches , two professors of Denver have a machine to do the stretching Was not something of the kind in use in the Dark Ages for the persuasion of the heretic? *We advise our lesser brethren* to have nothing to do with professional elongators of any nationality If they will learn to hold themselves erect, physically and otherwise, and abstain from contributing to the income of any who offer to make them grow, we assure them that they will not lose by abandoning the attempt to supplement Nature Inches do not make men, nor do advertisements For the rest, this is but the latest, and not the least, pathetic and lamentable instance *of the fraud and* theft which are *permitted to flourish in the guise of* advertisements with their revoltingly false testimonials '

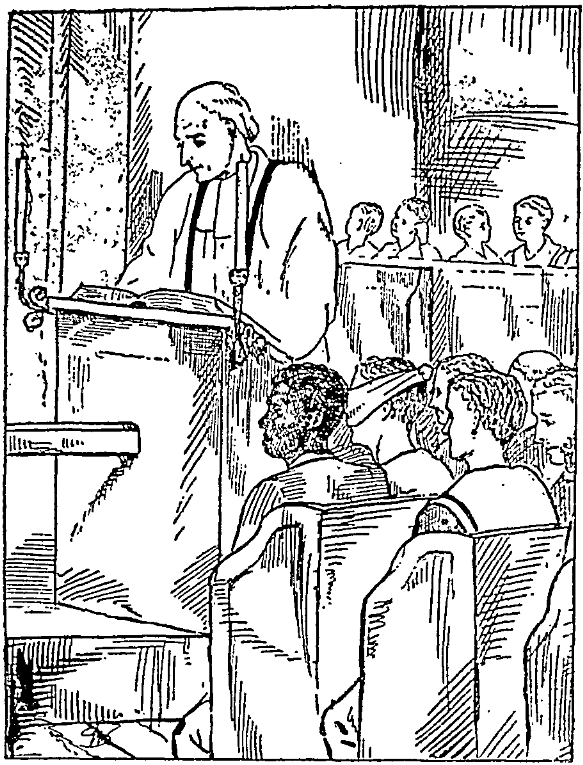
A HOSPITAL APPEAL OF THE LAST GENERATION.

THE urgent appeal to place the hospitals on a satisfactory financial footing, which appears elsewhere in our present issue, had its parallel in the times of our fathers, but a parallel only in direction and not in methods of procedure. Thirty years ago Sir Henry Burdett headed a chapter setting forth the needs of the hospitals of the metropolis with Martial's admirable motto:

"Life is not to live, but to be well."

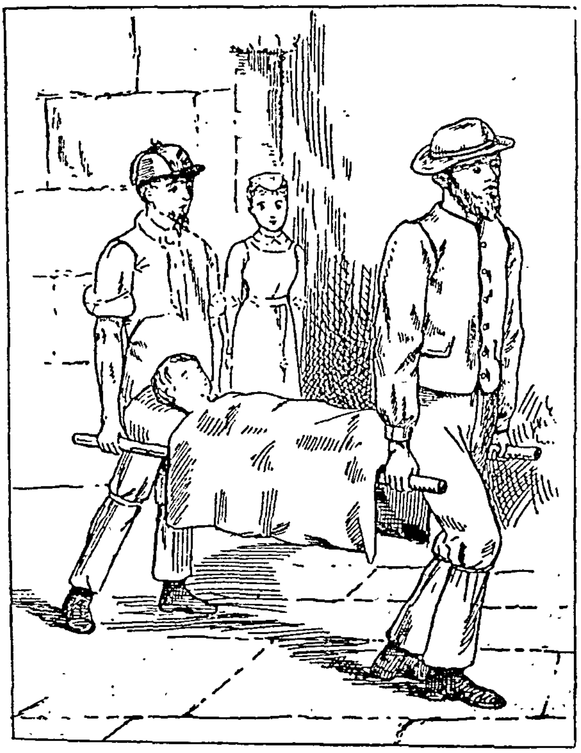
The need of hospitals, he then wrote, arises not from any special calamity which, when once overcome, is completely stamped out. "Year after year these huge institutions stand towering over the crowded, busy streets, homes of refuge for the sick, the dying, or disabled, although they are mainly dependent on chance subscriptions for maintenance. That these subscriptions come in is evident enough from the fact that the institutions continue to remain open."

FIG. 1.



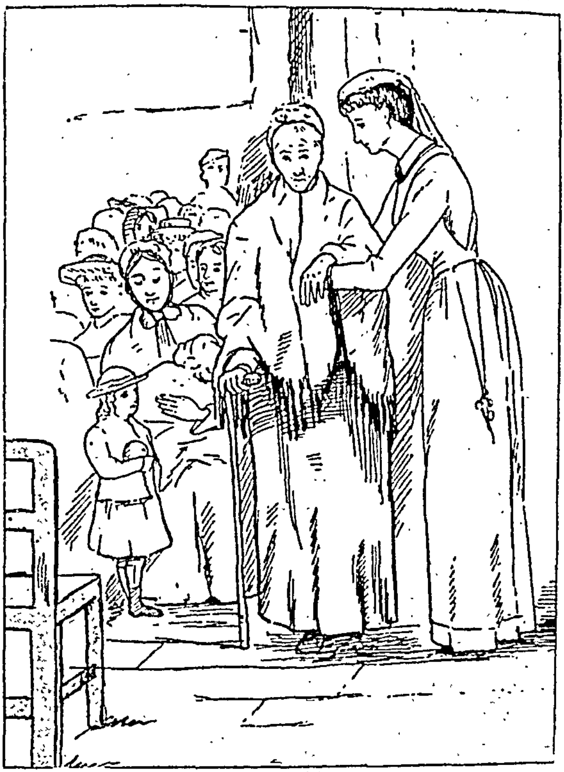
SEAMEN'S HOSPITAL, GREENWICH.

FIG. 3.



CHARING CROSS HOSPITAL.

FIG. 2.



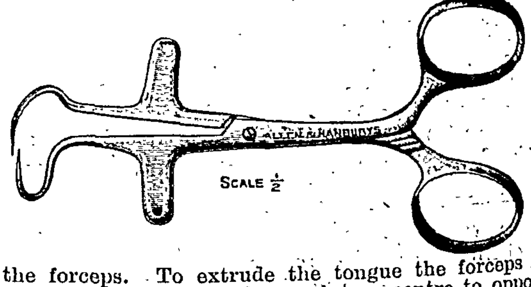
WESTMINSTER HOSPITAL.

Each generation has its own particular method of dealing with the problem of hospital finance and of appealing to the public. We reproduce here three of the illustrations designed in 1890 to set forth the particular services to humanity rendered by three metropolitan institutions. The first was issued by the Seamen's Hospital Society for its "Dreadnought" Hospital of 225 beds at Greenwich, "free to the whole maritime world." The wide range of age and nationality among its patients emerges clearly enough from the picture. The second shows a corner of the out-patient room of the Westminster Hospital (205 beds), with the evident intent of making known also the "large and flourishing training school and home for nurses." The third instantly turns the mind to the patients of Charing Cross Hospital, "more than two-thirds of which are cases of accident or emergency." The stretcher-bearers and nursing staff of the period are doubtless correctly depicted.

We obtain our realism to-day in a very different manner, and we wonder whether our statistics and balance-sheets speak as clearly. There was, of course, no comic side to these pictures when they appeared.

IMPROVED TONGUE FORCEPS.

THE tongue forceps here illustrated is an improvement on the older model, inasmuch as rotation is prevented by the two wings. The tongue is gripped half an inch from its tip by the forceps. To extrude the tongue the forceps are swung round on the puncture point as centre to opposite cheek. The forceps are constructed to lie flat on the face, thus preventing any leakage when using a closed anæsthetic mask. Messrs. Allen and Hanburys, Ltd., are the manufacturers.



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Kensington, W.

ROYAL ARMY MEDICAL COLLEGE LIBRARY No

Goulstonian Lectures

THE PRINCIPLES OF MEDICAL SCIENCE AS APPLIED TO MILITARY AVIATION.

Delivered before the Royal College of Physicians of London

BY J. L. BIRLEY, C.B.E., M.B., B.CH. OXON., F.R.C.P. LOND.

LECTURE I.

Delivered on March 9th, 1920

MR. PRESIDENT AND FELLOWS,—I am deeply conscious of, and I desire to thank you for, the honour you have done me in offering me this lectureship, at the same time, I am only too well aware of my limitations for fulfilling the onerous duty involved. Instead of employing these past few years in making original observations and gaining, as one had hoped to gain, some special knowledge in a particular branch of our science, we have been thrown into the rush of war, to be deluged by surprises, confronted with undreamt of situations, and expected at a moment's notice to pronounce expert opinions on subjects concerning which we would sometimes have preferred to confess a profound ignorance. Under these circumstances I felt myself strictly limited in the choice of a subject, and it came therefore as a relief to discover that the subject which I was forced to choose, scattered and diffuse as it is, would not be altogether distasteful to some of you.

It was the fortune of war, indeed the good fortune, which during the later stages of the first great battle of the Somme brought me into contact with our flying services in France; it was similarly good fortune to be allowed to remain with them until victory had been won.

The subject under discussion is, on the face of it, a new one, and I approach it with some diffidence, more especially since other workers in the same field have been tempted into making somewhat sweeping assertions which have failed to stand the test of subsequent investigation. As a matter of fact, the medical aspects of aviation embrace no new discoveries and necessitate no revolutionary doctrines, but rather insist on the proper application of well recognised scientific principles. The only novelty which can reasonably be claimed for these lectures is that they deal not with the causes and results of disease, but, on the contrary, with the effects produced in large numbers of healthy young men as the result of employment in an unnatural and dangerous occupation. In brief, they attempt to describe the reaction of the normal individual to an abnormal environment.

In this connexion I cannot refrain from remarking on a difficulty which must have confronted many of us. It was an everyday experience that when dealing with sickness or injury the medical officer possessed the complete confidence of his executive colleagues, but when it came to a question of offering advice on matters not directly connected with disease the reverse was the case. It is both easy and popular to criticise this conduct, but it seems to me readily comprehensible. The experienced soldier, not without reason, considered his credentials for knowing "what his men could stand" at least as good as those of his medical colleague. He argued to himself that a doctor was in his element when he had someone ill to attend to, and consequently out of it when dealing with fit men. This criticism had a great deal of truth behind it. We were, to put it frankly, ill equipped to answer the conundrums with which we were confronted. Trained to concentrate our attention on the lesion and its treatment, we were inclined to pay insufficient attention to the functional disturbances which it evoked, and none at all to the bodily reactions which aim at counteracting its effects. In war, however, function is everything, for in terms of function one measures efficiency. The capacity for mental and physical endurance displayed during the war was a source of universal pride, while to us in particular it provided in addition the stimulus for investigating the compensatory processes by which this endurance was rendered possible. In no field was progress more evident than in the psychological, and it is with the psychology of military aviation that this lecture is mainly concerned.

THE MILITARY DUTIES OF THE FLYING OFFICER.

If we wish to understand the psychology of the pilot and his observer, and to gain their confidence, we must have a clear idea of the work they have to do and the conditions under which they do it. The development of these activities, like the other subjects of these lectures, can best be studied historically.

In the earlier days of the war the aeroplane was used exclusively for purposes of reconnaissance—to report movements behind the enemy's lines and to assist the artillery in the location and, if possible, in the destruction of suitable targets. As the war proceeded reconnaissance was developed chiefly by the use of aerial photography and artillery cooperation by the use of wireless telegraphy. The next advance was to carry by means of bombs an offensive warfare behind the enemy's lines with a view to disorganising his communications, disturbing the productivity of his factories, and undermining his morale. This form of activity gave birth to night flying. As, however, enemy aircraft were employed on precisely similar duties, retaliatory measures began to develop on both sides. The anti aircraft gun, though capable of interfering with was powerless to put a stop to aerial activity, and it soon became apparent that this object could only be obtained, supposing it could be obtained at all, by the aid of aircraft itself. In this way arose fighting in the air—i.e., the destruction of aircraft by aircraft—and it was this aspect of aerial warfare which naturally appealed to the public imagination to the exclusion of what always remained the more essential forms of aerial activity. As the war proceeded aerial activity, although becoming greatly intensified owing to the increasing numbers of machines employed, maintained the characters alluded to. One further development, however, took place. This consisted in the active cooperation of aircraft with the infantry within the battle zone itself. For this purpose aeroplanes were employed at very low altitudes and within easy reach of hostile machine gun fire to assist bodies of infantry in maintaining contact with one another, and, further, by the use of machine gun fire and small bombs to harass the enemy in every possible way.

This brief résumé will serve to demonstrate the variety and dissimilarity of tasks with which our flying men were confronted, a point of considerable psychological importance.

ORGANISATION.

As the first Somme battle revealed the immense possibilities of aircraft in war, so it first drew attention to the medical requirements, or perhaps it would be more correct to say to the medical defects, of our flying service. Not only were battle casualties greatly on the increase in proportion to the numbers engaged, but losses from sickness as a result of nervous breakdowns began to reach alarming proportions. Moreover, officers who had previously been sent home for a rest were not coming back to France in the numbers that had been expected, or else, when they did return, exhibited less powers of endurance than they previously possessed.

Up to this time there was practically no medical organisation in the field or at home directed to the particular needs of the flying service. The need for such was, at this time at any rate, almost entirely a psychological one, while the reason for its absence was also, in my opinion, psychological. It was realised, of course, that warfare in the air threw a great and increasing strain on those engaged, but the belief was fostered, inspired partly by hope and partly by the fine qualities of mental discipline engendered by military training, that strain could be overcome and kept at bay by the exercise of will power for an almost indefinite period. It was difficult to realise that will power like the rest of one's mental faculties was not immune to exhaustion.

After two years of war officers were still being accepted as pilots and observers on the flimsiest medical examination or even on none at all, while those who were systematically examined were adjudged on standards which were originally laid down from the point of view of the ability of the candidate to march and to shoot from his right shoulder. It accordingly happened that a prospective candidate might be accepted with a blind left eye or be rejected on account of the possession of flat feet. This anomaly was corrected by the institution of a Central Board for the examination of all candidates for the flying services. That the new standards set up by this hard-worked body gave rise to even greater criticism than those which they replaced will be referred to in a subsequent lecture. Suffice it here to say that such a state of affairs was, to my mind, inevitable.

In the field very little organisation was necessary to meet the requirements. The first step was to obtain suitable medical officers for duty with groups of squadrons, with the main object of acquiring a personal knowledge of all officers under their care; those with previous experience of battalion work, and therefore with knowledge of the psychology of the fighting man, were particularly sought after. It was next necessary to obtain at some convenient base a number of beds reserved for the reception of flying personnel, whose disability appeared to be directly related to the peculiar work on which they were engaged. This hospital unit rapidly became one of the busiest in France, thanks to the tireless industry and enthusiasm displayed in its inception and continuation by the late Dudley Corbett and H. C. Bazett. The most important step, however, was to maintain constant liaison with commanding officers, to make them realise that the science of medicine had a sphere of usefulness beyond that of dealing with the sick and wounded, to convince them that it was a necessary factor in promoting efficiency and maintaining discipline, and having excited their interest to obtain what was absolutely essential for our purpose, their sympathetic coöperation. During the months from August, 1917, to November, 1918, inclusive, close on 2000 flying officers passed through this special hospital unit; of these over 40 per cent. were deemed to be suffering from the fatigue inseparable from active service. In order to interest commanding officers in the medical aspects of aerial warfare they were encouraged not only to visit this unit, but also to send a confidential report on every patient admitted. In this way the large majority of them were stimulated into taking an intelligent interest in the physical and psychical welfare of those under their command, and many by becoming extraordinarily astute psychological observers afforded us valuable assistance. Individual psychological study was possible in the air service to a degree unknown in the infantry; this was so not merely because of the comparatively small numbers involved, but also on account of the high degree of individualism which service flying entails and encourages.

TEMPERAMENT.

A great deal has been written about "the flying temperament" as if it were something sui generis, and it has been suggested, and in some quarters even claimed, that it is possible by medical means alone to discover its presence and lay bare its absence. We all know what we mean by temperament, and yet to define the particular qualities going to make up the temperament necessary for success in any given walk in life is not one which can be lightly undertaken.

A. *The Flying Temperament.*

It has been elsewhere[1] pointed out that the temperament for flying per se was of little importance in the field, since those devoid of it did not, as a rule, reach the active service stage. One can hardly be surprised that a proportion of presumably normal individuals dislike flying, for there is after all a certain feeling of insecurity of tenure in the air which becomes more pronounced during prolonged flights. I understand that the majority of those who since the war have made flights extending over several hours have experienced a definite sense of relief on landing. It is, therefore, doubtful whether we are justified in classifying this particular distaste among those pathological phenomena known as phobias. A curious feature of those cases which have come under my notice has been a feeling of increasing insecurity with increasing altitude. Such individuals remained comparatively comfortable up to one or two thousand feet, but above this height they were overtaken with a consuming dread. One particularly gallant officer vainly attempted to conquer this weakness by covering up his altimeter with his flying cap. There appeared to be no correlation between this "altitude neurosis" and the discomfort experienced when gazing over a precipice or looking down from a high building. There were, however, a few individuals who, greatly to their credit, in spite of an ever-present sense of insecurity in the air, not only learnt to fly, but so mastered their feelings that they became successful military pilots, gaining promotion in the service and even winning decorations for gallantry.

The attempt to determine by physical and psychological examination the possession, or otherwise, by an individual of the temperament for flight is one with which I must confess to be little in sympathy as being one beyond our reach. Even an individual's keenness to fly may be misleading owing to the lack of correspondence between anticipation and realisation. Flying aptitude should rather be compared with any other form of activity requiring perfect coöperation between eye and hand. Such coöperation is best exemplified, and incidentally may be greatly developed, by the playing of games. "Flying," as Dr. Henry Head has very correctly said, "introduces no elements which are not in evidence in riding a motor-bicycle, game-shooting, cricket, or golf."[2] But two individuals may be equally good at the same game or the same sport, and yet their methods may have nothing in common; we say their "styles" differ. So too their temperaments may differ widely and yet the end-result be the same. At the risk of being accused of levity I would in all seriousness ask what possible resemblance could be traced in the physical or temperamental qualities possessed respectively by Dr. W. G. Grace and Prince Ranjitsinhji? Just as the latter could break all the rules of batting with impunity, so can some pilots break at least many of the rules of flying without at the same time breaking their necks. To postulate one temperament and one only for flying, or for any other form of coördinated activity, surely implies a too mechanical and stereotyped habit of mind. We cannot at present identify the potential cricketer or mathematician except by watching how the former catches a ball and how the latter does sums, and the same principles would seem also to apply to the art of flying.

Nevertheless, the attempt to define and isolate this elusive quality, the flying temperament, has been productive of a vast amount of pioneer work in the countries at war, more, perhaps, in France, Italy, and America than here. Large numbers of experimental values have been obtained and correlated with the subsequent success or failure of the candidate.[3] For the so-called "kinæsthetic ability," for example, no less than 32 values were ascertained by the French authorities for each candidate, all of them connected with the general function of equilibration. These values, however, were not actual measurements of efficiency, but merely determinations of certain reactions assumed to be indicative of efficiency. It cannot be said that in this field, at any rate, the results were convincing; the equilibration tests employed in America, for instance, gave the same correlation with success as a pilot as did the candidate's ability to drive a motor-car. Similar correlations were sought for by statistical and routine analyses of character and intelligence, but again with indecisive results.

Psychometric tests.—The most promising line of approach appeared to be that afforded by the psychometric tests, which, under the direction of Camus and Nepper, achieved considerable fame in the French flying service. These tests were based on the assumption that "aviation demands the special quality of rapid decision which is measurable by the candidate's psychomotor reactions." While not denying that rapidity of decision is most desirable, I would emphasise what has been repeatedly pointed out to me by numerous flying friends (some of whom, it is true, failed at these reactions) that, whereas a clear judgment and correct rather than quick decision will make all the difference in a tight corner, as in any other activity, flying under peaceful conditions in the absence of untoward events is a sedate procedure, bordering at times on the monotonous. They also point out that the bodily movements necessary for controlling an aeroplane are methodical and deliberate, and not to be compared in speed with those necessary for playing a game such as racquets.

Psychometric reactions are divisible into two main groups—simple and complex or choice. In the former the stimuli are of the most elementary character, plain visual, auditory, or tactile impressions. These reactions are recorded by means of the D'Arsonval chronometer. The average normal values are as follows: Visual 19/100ths second, auditory 14/100ths, and tactile 14/100ths. A satisfactory reaction also entails but little variation between the individual responses in the whole series. The responses are slowed in conditions of exhaustion and after illness, a fact which was corroborated on our own pilots. Although I have no statistical evidence that these simple reaction times are an indication of flying aptitude, I understand that the results obtained on some of the most distinguished and successful fighting pilots in the French air service strongly supported such a view. But even so, there is still the possibility that these tests afford an indication not so much of aptitude for flight as of ability to fight a gun in the air, an operation which especially calls for great rapidity and dexterity of movement. Of the three reactions, that to auditory stimuli would seem the most delicate.

In the complex or choice reaction the subject is not limited to one movement, but has to select between two or more according to which stimulation occurs. Theoretically this would appear to give a better indication of the quality of rapid decision, in which complex psychical processes must necessarily be involved. From an investigation carried out on these lines it certainly appears that the correlation with flying aptitude increases up to a point with the complexity of the reaction [4]

B *The Fighting Temperament*

In war the aeroplane has to be looked upon as a device whereby the mobility of the individual is so increased that he is able, directly or indirectly, to inflict losses on the enemy in the enemy's territory The military pilot must therefore possess the combatant spirit This is not necessarily associated with the aptitude for flight The most skilful pilot might be, and sometimes was, valueless as a fighting force, while, conversely, lack of technical skill was very far from being equivalent to lack of military value indeed, several of those pilots, the memory of whose conspicuously successful gallantry will endure, could not be considered first class fliers, while one, at least, was definitely indifferent Hence what chiefly mattered in the field was the fighting temperament This is a theme, however, which cannot profitably be dealt with here

PERIODS OF EFFECTIVENESS

Confining our attention now to an officer's effectiveness as a fighting force, and not to his skill as a pilot, from the purely technical point of view, it was found that the degree of effectiveness varied greatly at different states of his military career These stages may conveniently be compared to the seasons of the year

The Period of Inexperience

This is the flying officer's spring and is chiefly occupied in learning to fly, an aspect of which I have no personal knowledge Its importance is obvious, and it provides a fruitful field for psychological study But this stage does not end when the individual reaches the fighting line as a fully qualified pilot, for he is still without practical experience of war During the next two months he passes through the most critical stage of his career, gaining experience only too often at the cost of his life To realise this it is only necessary to consider what may be called the military age of a flying officer, his birthday being the day of his arrival in the fighting line If, for example, we wish to determine the average military age in any squadron or group of squadrons we have to determine the total number of weeks served by each officer since his arrival in the squadron and divide the total by the number of officers in the squadron or group Similarly, we can determine the average military age of those who become casualties as the result of battle, accidents sickness, &c The following figures are only approximate but for our present purposes sufficiently accurate

On the Western front the average military age of casualties due to battle and accidents combined was for the whole of 1917, 2 months and 18 days, for the five winter months the military age was as much as 3 months 4 days, but for the summer (fighting) months 2 months and 11 days Or, to put the matter differently, of the battle casualties sustained during the fighting months of 1917, 35 05 per cent occurred among officers who had been less than one month with their squadrons 25 60 per cent among those who had been less than two, and 12 32 per cent among those who had been less than three The corresponding figures for the whole of 1918 up to the armistice were as follows 26 43 per cent under one month 27 97 under two months, and 14 97 under three months That is to say, during 1917 and 1918 roughly 70 per cent of the casualties sustained in battle and in accidents occurred among officers who had completed less than three months of active service These figures must not be taken too literally First, it must be remembered that officers did not remain on an average much more than six months in the field before being sent home for a rest Secondly, there were always larger numbers of "young" officers in a squadron than "old' ones, and therefore the incidence of casualties among the former is not as heavy as the figures quoted would make it appear Remembering, too, that casualties had nearly always to be replaced by the inexperienced, a period of heavy casualties by lowering the average military age of a unit tended to increase its vulnerability

But altogether apart from figures it was the unanimous opinion of all unit commanders that a pilot s, especially a fighting pilot s, first two months of active service constituted the critical period, during which he was more likely to become a casualty himself than to inflict casualties on the enemy The period of inexperience then corresponds to the period of minimal military effectiveness and of maximal vulnerability, and particular stress has been laid on it, not so much because it contrasts so vividly with the ensuing period, but because unless it is appreciated it is impossible to understand the psychological atmosphere of a flying squadron as a whole

The Period of Experience

Having escaped the dangers surrounding his first two months, the flying officer enters upon the summer of his career, a period of confidence and self assurance, of initiative and dash, of skill and wise discrimination, of success and achievement His vulnerability is now relatively slight and his military effectiveness at its zenith The length of this stage is naturally variable, depending on the constitution of the individual, the amount and character of his work, and the success he achieves in doing it The inspiration born of success especially helps to prolong it Nevertheless, it is absolutely certain that it cannot last indefinitely, autumn, or the period of reaction, must supervene sooner or later And it will be just here that the ability to make accurate psychological observations and deductions, whether in a unit commander or his medical colleague, is of such vital importance For if the successful officer can be spared from experiencing in too great a measure the mental conflict which characterises the period of stress, if he can be rested at the crucial moment, he will in a comparatively short time again be fit to return to the fighting line, not to embark again on those critical two months of danger and inexperience, but to jump with one bound into a second period of confidence and efficiency The appearance of one such individual might even rally a broken and discouraged squadron

The Period of Stress

The mental strain inseparable from warfare in the air presents the same picture, both in its development and its end effects, as that which occurs in other combatant branches of the service, it is only the colouring which is different It will be worth while briefly to consider a few practical points peculiar to the flying service which modified the development of the condition of stress It was a curious feature about a fighting squadron, comprising only eighteen flying officers, that it could be made or marred by two or three individuals especially if they were in the position of leaders These few set the pace often it is true, to the detriment of those who attempted to follow If, now, one of these individuals were permitted to remain when the period of stress had become definitely established, and his efficiency was on the wane the results might be disastrous His leadership in the air became less effective, the offensive spirit dwindled, and the new arrivals in the unit obtained an entirely false impression of the standard of work expected from them A leader therefore, whose effectiveness was lowered by fatigue could as easily mar a squadron as one in the prime of his career could make it Nevertheless, his commanding officer was often reluctant to replace one who had served him so long and so well, often enough he had already acquired a reputation to shake which something more was demanded than a falling off in achievement, too often but generously regarded as a temporary run of ill luck

Secondly the type of flying largely determined the onset of stress In artillery squadrons, where the mind was fully occupied in registering targets signalling the progress of operations, &c and pilot and observer enjoyed each other's companionship, complete efficiency was retained in spite of the dangerous character of the work, up to eight nine, or ten months, or even over a year In fighting units however where the whole object was to destroy the enemy in the air or to take part in the infantry battle, the effective period was much less

Thirdly, the irregular hours of sleep during the summer, with the nights disturbed by the aerial activity of the enemy, were an important influence in hastening the onset of stress The question of sleep was particularly difficult to arrange in squadrons employed exclusively by night

Again, all flying is in a sense fatiguing, in that it demands attention but the fatigue experienced is in inverse proportion to the skill of the pilot and the efficiency of the aeroplane The importance of the latter factor in war is very real The psychological effect of the appearance on one or the other side of a machine superior to anything that can be pitted against it was frequently in evidence on the Western front In the same way flying over enemy territory with an engine the reliability of which was open to question was an operation peculiarly adapted to the rapid acquisition of a state of anxiety

The question of altitude will be dealt with in a subsequent lecture Here it is only necessary to say that flying at altitudes over 13 000 to 15 000 feet was a factor which definitely accelerated the onset of nervous fatigue

The most important psychological factor however, peculiar to the flying service was its individualism Flying in formation diminished but certainly never abolished this outstanding feature A flying officer relied essentially on his own skill his own courage his own resolution, and his own sense of honour and of duty He lacked and most certainly missed the inspiration born of responsibility to his men and that intimate comradeship in danger which for the infantry officer served as sources of support and encouragement [5]

THE MENTAL REACTION.*

It is not proposed to discuss this subject in any spirit of controversy, but to regard it as a perfectly normal reaction to a very abnormal environment. That this reaction is now comprehensible is largely due to the advance in our psychological knowledge which was literally forced upon us by the war.

It will be recalled that man's earlier interpretation of the universe, and therefore his attitude towards disease, was essentially an animistic one, and all disease was ascribed to spiritual agencies. This interpretation was gradually replaced by explanations of a materialistic kind, so that the production of disease was ascribed in an increasing majority of instances to material agents, and only where no such explanation seemed possible were spiritual agencies still invoked to account for its presence. The concept of the activity involved by these latter agencies was, however, very different from what we now understand by "mind." It was the impetus derived from the study of the phenomena of hypnotism, introduced from the East, which led modern thought to the recognition of the *mental* factor in medicine. In the course of these studies it was found that hypnotism might offer the means of reaching experience "which had been so completely buried that by no effort of the will could it be recalled."[6] It was left to Freud to demonstrate that these buried memories could be recalled without the aid of hypnotism by means of what he called "free association," the necessary clues being usually provided by dreams.[7] By the knowledge derived from his analyses he was able to put forward for the first time a definite scheme of the unconscious region of the mind and its relation to the conscious. It accordingly became possible to correlate events in the sphere of the conscious with events in the sphere of the unconscious, and so to adopt in the sphere of the mental the principle of determinism which had so long assisted the progress of physical science. It is the special value of Freud's work that the student of mind can now believe that every psychical event has its psychical antecedent, and so believing will have the patience and courage to probe deeply into the history of his patients.

Partly independently, but partly because of Freud's work, the great importance of the instinctive or emotional aspects of mind was becoming increasingly recognised before the war, and the emotional factor in neurosis was coming to be regarded as the expression of some instinctive tendency which had to be repressed on account of its incompatibility with social standards. It is well known that Freud was led to the conclusion that the mental experience which tended to be so suppressed was nearly always connected with the sexual instinct, and the exaggerated importance attributed to this factor, more especially by his disciples, not unnaturally rendered his views unacceptable to the general body of medical opinion both in this country and in France. The war, however, while accentuating the truth of Freud's main assumptions, has made it possible to discard the dominating importance of sex, and to substitute in its place the still more fundamental instinct of self-preservation.

In dealing, therefore, with the reaction inevitable in war we are dealing first and foremost with the defence mechanisms developed by the individual for countering his natural instinct of self-preservation. When these mechanisms are weakened by shock or prolonged strain, and the instinctive tendency comes into conflict with social standards, a condition of neurosis results. Among the instinctive or affective aspects of mind which particularly concern us the emotion of fear naturally takes pride of place.

The most frequent mode of reaction to actual danger in man consists in an extremely complex reflex action which so adjusts the bodily functions as to render the individual better fitted to meet and overcome the danger. In this, which we may call the physiological reaction, the emotion of fear takes no part and fails to appear; we say a man is "cool in the presence of danger." A second mode of reaction consists in the replacement of the emotion of fear by the emotion belonging to the instinct of aggression—namely, the emotion of anger—and we say a man "sees red." In both modes of reaction, however, although fear is not felt, we may, for many cogent reasons, confidently assume that it is potentially present, but in a state of suppression. It may, however, and indeed does, appear on the surface when the mechanism of suppression is lowered by shock or strain, or when higher control is weakened, as, for example, in the waking state.

These considerations lead us to the comprehension of the two earliest symptoms of the mental stress induced by war, first the nightmare, and secondly the occurrence of actual fear or of apprehension under circumstances in which these had not been previously experienced. These symptoms the sufferer keeps to himself, and so begins an entirely new process, the conscious repression of fear and apprehension, which are regarded with shame, and as much as possible evaded. The slang nomenclature to which the war gave birth, especially the substitution for the word "fear" of quasi-humorous expressions, is in itself evidence of the desire of the individual to shun the consciousness of fear. This conscious suppression of fear only serves, however, to increase the strain and fatigue which has led to the failure of its unconscious suppression, and a state of persistent anxiety gradually develops, characterised particularly by loss of sleep and various disturbances of physical health.

"Wind Up": A Clinical Picture.

The clinical picture presented by an officer whose mechanisms of defence have given way under the strain of war is characteristic. In its earlier stages, however, it is usually entirely subjective, and its presence can therefore only be discovered by a medical officer whose personality compels the sufferer to come to him in confidence and disclose his troubles. The tired pilot may under these circumstances complain of having lost some of his keenness; he has recently been dissatisfied with his work, and for the first time has begun to wonder when it will be his turn to go home; he has already been out over six months. He has not been quite sure of himself in the air lately, and to make certain that his confidence for flying is unshaken he has attempted to reassure himself by proving his ability to execute various manœuvres dangerously close to the ground; the result has not been a success. Perhaps it is all due to the mess having been unsatisfactory; he thinks the tone has gone down; anyhow, he has been off his food. He has only just recently recognised that he prefers to leave the mess after meals and lie down and read a book in his own room. His sleep is less sound than it used to be; he takes a long time to get off and has lately been dreaming. At first the dreams were not unpleasant, merely that he was making bad landings and getting laughed at. Then they began to worry him; he would dream of long-forgotten experiences in the trenches, or that he was "brought down" and taken prisoner; and he hardly likes to mention it, but once he was "brought down" in flames, and woke up in terror shaking all over. His administrative work on the ground has been a labour instead of a pleasant duty; he has had a row with his sergeant, and he feels the "C.O." is losing faith in him. The new pilots from England are not altogether satisfactory; his responsibilities weigh heavily on him, and he thinks that the death of a member of his flight was avoidable, and perhaps was his fault. He admits that he is conscious of having to force himself into the air, and is inclined when leading a patrol not to "go for" things which he would have done without hesitation a fortnight ago. Perhaps flying has affected his heart; he has had palpitations lately, has been short of breath on exertion and easily tired. Anyhow, the whole thing is a complete mystery to him, although he is sure it is only temporary and the doctor will give him something to put him right. And so, seeking for trivial causes in explanation of a fundamental change, reluctant to acknowledge what he dreads—what, moreover, he has publicly condemned in others—equivocating, pursuing false hopes, and evading the real issues, this eminently brave man will frequently conclude with the appeal, "Don't tell me its 'wind up.'"

It is at this stage that the medical officer can obtain results of incalculable value to the individual, both as a patient and a soldier. The condition is essentially mental, and treatment must be directed to the mind. By assuring him that there is no cause for shame or reproach but rather the reverse, and by inducing him to give up the process of voluntary repression, he can so prepare the soil that during the necessary rest which he will insist on the normal mechanism of defence will be rebuilt and the individual restored to perfect health and efficiency. Moreover, having once experienced the condition and made to understand it fully and frankly, the officer will in future be enabled to understand its appearance and recognise its onset in his companions.

When the condition is allowed to progress unrecognised the state of anxiety increases. The more stout-hearted the sufferer the longer he disregards Nature's danger signals. He becomes irritable, unsociable, morose, losing his inspiring personality, and adopting a black outlook on things in general. Although he feels tired, he is excitable and restless; unable to sit down to read or write, he must needs always be pottering about the aerodrome looking at the weather. To keep himself going he smokes to excess, or may even come to rely on alcohol. If he meets an enemy formation on patrol he either turns tail or attacks recklessly, too tired to think about manœuvring In the last stage the noise of the engines on the aerodrome distresses him, he cannot bear to see a machine take off or land, and he even hates to hear "shop" talked Sooner or later he must give in The career as a war pilot of an individual who reaches this extreme stage is irrevocably finished

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* In this section I have drawn freely from two sources: (i.) two contributions by Dr. W. H. R. Rivers—(*a*) Mind and Medicine, a lecture delivered on April 4th, 1919, and published by Longmans, Green and Co., and (*b*) "Wind Up," an article written for the use of R.A.F. medical officers; (ii.) an unpublished paper entitled "Flying Fatigue and Efficiency," written in France in August, 1917, by my late friend and colleague, Dudley Corbett.

Prophylaxis and Cure

It would seem at first sight an easy matter entirely to prevent the development of the anxiety state by anticipating it In practice, however, such a course was well nigh impossible Some of the reasons why this was so can be inferred from what has already been said, they were not within the control of any one man, but were rather the inevitable consequence of the way in which the war developed It was, however, recognised that the principle of short shifts was applicable here as in all other communities where industrial fatigue was to be expected, and in this way it was found possible perceptibly to reduce the *permanent* wastage from this cause, and materially to shorten the interval between an officer's admission to hospital and his return to the fighting line

During the closing months of the campaign, when the drain on the man power of this country had become very severe, the anxiety neurosis became a more prominent and far more difficult problem than ever before, although in a somewhat modified form The type of manhood that was being pressed into the service inevitably deteriorated In these individuals, and essentially as a result of the lack of that mental and bodily education which more than anything else assists the formation of character and the gradual development of the psychological mechanisms of defence, the powers of resistance were insufficient The majority of them mentally immature, many of them physically so, unaccustomed to rely on themselves, looking rather for things to be made easy for them, lacking initiative, and naturally apprehensive, through no fault of their own they were ill equipped for the duties for which they had been hurriedly trained Moreover, the qualities requisite for a successful fighting pilot are as relatively rare as they are splendid, and it was particularly in fighting machines that the great numerical expansion of the air service had taken place These individuals, then, never having acquired that unconscious suppression of fear which in their more fortunate comrades of tougher calibre had come into existence in early boyhood, broke down early, and had to be eliminated as quickly as possible For the condition of anxiety which so rapidly developed in these misfits I have elsewhere proposed to substitute for the term "stress" that of "distress"

The line of treatment to be adopted in the states of strain imposed by war follows closely from what has been said as to the causative factors, mental and bodily calm have to be restored It is first necessary to eliminate the affective state due to the disturbing emotion of shame, and, secondly, to persuade the sufferer to discard the process of voluntary suppression Two other therapeutic agencies may be mentioned The first, that of self knowledge, by which, among other things, the sufferer is brought to understand elements of conscious experience which are being misinterpreted, the second and more important, the agency of self reliance, by which he is persuaded frankly to face his troubles instead of running away from them In other words, we have first to assist the patient suffering from stress to understand his troubles, and then to appeal to his common sense and his character, it is easy to understand why, in the condition of distress, the results of mental therapy must be disappointing

THE PHYSICAL REACTION.

The disturbances evoked by abnormal psychical states in the physical sphere may be profound, and the recognition of this fact, forced upon us by the war, seems likely to play a prominent part in influencing the future progress of medicine. There need be no difficulty in understanding this if we remember the profound physical effects invoked by emotional states, amounting in animals to complete muscular paralysis

The incidence of these disorders varied greatly Many officers after a long and arduous spell of work, though conscious of an altered state of mind, showed little manifest disturbance of physical function One of the earliest signs of stress was revealed in a loss of weight, amounting in some cases to over a stone in two or three weeks Clearly metabolism, as in exophthalmic goitre, was tuned to a high level, and it has also been shown that the oxygen consumption per minute was often above normal in these cases[9] In a large number of individuals, however, in whom a state of anxiety had become definitely established, all or some of the physical changes shortly to be mentioned were found to exist These disturbances were all characterised by a loss of central nervous control, resulting in conditions the main feature of which was overaction[1] It was our practice in France, a practice originating in the supposition that repeated exposures to high altitudes might induce changes in the circulatory and respiratory systems, to investigate these systems with particular care It soon became apparent, however, that the disturbances which were frequently found could not fairly be attributed to such exposures alone, since they were common to the majority of individuals suffering from mental strain, in many of whom high altitudes could not have been an ætiological factor

In the circulatory system a rapid pulse, throbbing cardiac action, a pulse rate and blood pressure both unduly susceptible to changes in posture and slight exertion, and a large pulse pressure were the rule In such cases, even when resting, the heart appeared to be working at full pressure with no reserve to draw upon when an extra effort was demanded of it A short walk along the road was sufficient to produce physical distress

In the respiratory system the shallow rapid breathing, small tidal air, diminution in vital capacity, and high ventilation per minute all pointed to an excessive irritability of the respiratory centre, and consequent diminution of respiratory reserve power[10]

In the neuro muscular system loss of tone of the abdominal wall, as evidenced by stomach splashing and diminution of expiratory force, tremors of the hands and tongue, and disturbances of static equilibrium were all indicative of an escape from nervous control

The increased output of adrenalin with the production of hyperglycæmia,[11] which has been shown to occur in various emotional states, probably results from excessive stimulation of the sympathetic system[12] In the same way may be explained the remarkably acute and at times alarming digestive disturbances, simulating the picture of duodenal ulcer, which occurred so frequently, and also the abnormal action of the vagus on the heart[13] and lungs[14]

It is impossible to escape the conviction that in a large proportion of these cases this condition was essentially mental (emotional) in origin This view in no way conflicts with the theory of toxæmia favoured by Lewis to account for the similar condition in the foot soldier[13], on the contrary, following the influenza epidemic of 1918 numerous officers were found to be suffering from a condition clinically indistinguishable save for the absence of anxiety, from that which has been briefly described

The emotional factor in the production of physical disturbances is well illustrated by a series of pilots who had been concussed as a result of a 'crash' with loss of consciousness Of 24 cases one half, several of whom could remember nothing about the accident, seemed little affected, the response of the pulse to change of posture and to exercise was normal, there was no loss of abdominal tone, no tremor, and a comparative absence of symptoms All returned to duty after a short rest and did excellent work The other half all had vivid memories of their accidents and were definitely "on edge", their pulse rates were high and unstable, abdominal tone was poor, tremors were prominent and headache persistent All were evacuated to England and none of them returned

SUMMARY.

The experiences which have been studied serve to emphasise the predominating influence of the higher nervous centres in man The lower centres in their turn transmit these influences to every organ in the body, and we realise as perhaps never before that our bodily health and bodily activities are at the mercy, so to speak, of events taking place in our cerebral cortex

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WELSH NATIONAL SCHOOL OF MEDICINE: THE CHAIR OF PHYSIOLOGY —Dr. T Graham Brown, who since his release from military service has been carrying on his work as lecturer on experimental physiology at Manchester, has been appointed Professor of Physiology in the Welsh National School of Medicine, to the chair which fell vacant on the resignation of Professor J Berry Haycraft Professor Brown will be in charge of the new physiological laboratories recently erected at Cardiff

ENCEPHALITIS LETHARGICA

(EPIDEMIC ENCEPHALITIS).

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With a Note on

POST-MORTEM FINDINGS IN A SERIES OF CASES OF ENCEPHALITIS.

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THERE is an especial fascination to the clinician attaching to a disorder which presents no single distinctive feature, which may simulate, or be simulated by, a large number of other affections, and in the recognition of which cytological, bacteriological, and chemical procedures have hitherto failed to afford any positive assistance. I may remind you that in the spring of 1917 von Economo[5] directed attention to a "new disease," * cases of which were occurring in Vienna and its neighbourhood; that in the early spring of 1918 Netter[18] observed cases with a corresponding symptomatology in Paris; that in April of the same year Wilfred Harris[9] and Arthur J. Hall[7] simultaneously reported the presence in England of cases which presented similar features; and that Bassoe[1] was the first to report cases of the disease in the United States in March, 1919. No doubt you will remember the general interest evoked in the public press by the suggestion that these cases might be attributable to the *Bacillus botulinus*—a suggestion which was before long proved to be incorrect. Crookshank,[4] Melland,[16] Kinnier Wilson,[24] Farquhar Buzzard,[3] S. P. James,[10] James McIntosh,[12] A. S. MacNalty,[13] R. J. Reece,[20] and Marinesco,[15] among others in this country, have contributed to the literature; numerous isolated case records have been reported, and the subject has been discussed at several sectional meetings of the Royal Society of Medicine, while in October, 1918, a Blue-book, entitled "Encephalitis Lethargica—an Enquiry into an Obscure Disease," was issued by the Local Government Board. Nevertheless, I am satisfied that cases of encephalitis lethargica are only exceptionally recognised, and this is not surprising for several reasons. In the first place, the clinical pictures presented, even by typical cases, are very varied; again, a variety of different titles were employed with which to designate the earlier case reports; while, further, during 1918, when the majority of the contributions to the literature of encephalitis lethargica were appearing in the medical journals, practitioners had but little opportunity or leisure for literary study. This being so, I feel that no apology is called for as an introduction to the following remarks, which are based upon a considerable experience of the disease.

Evolution of Conception of Encephalitis.

As a preface to subsequent considerations, it is interesting to trace what I may term the steps in evolution, both eliminative and constructive, which have led up to the present-day pathological and clinical conceptions of non-suppurative encephalitis.

The current view regarding encephalitis in the early "forties" of last century may be illustrated by reference to a remarkable work, "The Diseases and Derangements of the Nervous System," published in 1841 by Marshall Hall, a name to be remembered as one of the most distinguished in the history of British neurology. This authority, under the term "encephalitis," included not only meningitis, abscess of the brain, and, indeed, all inflammatory processes within the cranium, but in addition the cerebral softenings, the relation of which to interference with the blood-supply was at that time not recognised. Although Marshall Hall enumerates a number of clinical features which are met with as a sequel to the various processes just mentioned, the latter were not differentiated pathologically, and a diagnosis during life was consequently impossible.

Three names stand pre-eminent in relation to the process of elimination which has led up to the present-day conception. Thus Virchow, who in 1846 published his famous work on embolism and thrombosis, may be said to have paved the way to the discovery that the great majority of the softenings of the brain substance, which had hitherto been attributed to an inflammatory process, were in reality a consequence of vascular occlusion. Again, Quincke, by the introduction of lumbar puncture in 1891, opened up a new field in the study of the cerebro-spinal fluid, and thereby effected a great advance in the diagnosis and differential diagnosis of meningitis; while Sir William Macewen, who in 1893 produced his well-known work upon "The Pyogenic Diseases of the Nervous System," has probably done more than any other observer to further our knowledge of suppurative encephalitis or abscess of the brain.

Constructive evolution dates from the early "eighties" of last century. Four groups of non-suppurative encephalitis have, I think I may say, been recognised by clinicians in the past, and to these I shall now briefly allude. Wernicke, in 1881, recorded three cases of encephalitis which were characterised clinically by an ophthalmoplegia of more or less sudden onset and pathologically by an acute hæmorrhagic inflammation of the grey matter of the floor of the third and fourth ventricles and in the neighbourhood of the aqueduct of Sylvius. Alcohol appeared to play a definite rôle in relation to these cases. Since the symptoms were purely motor, and since the process was an inflammatory one which affected essentially the motor nuclei in the upper part of the brain stem, Wernicke compared the condition which is now often known by his name to acute poliomyelitis, and termed it superior hæmorrhagic polioencephalitis. The adoption of this nomenclature was perhaps unfortunate, since the two disorders, although they present an homologous pathological anatomy, are ætiologically and clinically distinct. Wernicke's superior polioencephalitis has been, in the past at least, a condition of extreme rarity. Strümpell, in 1884, advanced the view that the cerebral palsies of childhood are for the most part dependent upon an encephalitis of the cortex of the brain, similar in its nature to the poliomyelitis of the spinal cord. Admitting the truth of the contention advanced by his critics that an inflammation limited to the cortex would not account for a widespread involvement of the white matter of the hemispheres with porencephaly, such as is observed in some of these cases, Strümpell abandoned the term polioencephalitis, which he had originally employed in this connexion, and in his later writings speaks of the encephalitis of childhood. There is reason for believing that the encephalitis of Strümpell may be due to a specific organism, the nature of which has not, however, as yet been determined. The same observer appears to have been the first to describe an encephalitis with a cerebral localisation in the adult. Medin, the Swedish physician, who at the Berlin meeting of the International Medical Congress in 1890 reported an outbreak of poliomyelitis in Stockholm, demonstrated that cerebral palsies are far from uncommon in epidemic poliomyelitis. The dependence of these symptoms upon an encephalitis, which must obviously be due to the same specific virus as poliomyelitis, has since been proved anatomically by Wickman and others. The occasional occurrence of an encephalitis as a sequel to one or other of the infective fevers is repeatedly referred to in the literature. It would seem, to judge by the number of infective maladies in the course of which an encephalitis has been noted, that a great variety of different organisms are capable of producing an inflammation of the brain, although the combination of circumstances which permits of this must be one of extreme rarity.

I shall now direct your attention to encephalitis lethargica †—the type of encephalitis which has been so prevalent of late—with particular reference to the clinical features these cases present and the many problems in diagnosis to which they give rise. I find that I have notes of 57 cases seen since March, 1918, in which I have made a definite diagnosis of encephalitis lethargica or epidemic encephalitis An opportunity of corroborating the diagnosis after death was, it is true, *only afforded on three occasions*, a circumstance accounted for by the fact that the great majority of the cases were seen in consulting practice, only four patients dying in hospital The series above referred to includes, however, no case in which the nature of the condition appeared to be open to reasonable doubt

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* F. G. Crookshank[4a] has adduced evidence from the older medical literature, which suggests that epidemics of encephalitis have occurred from time to time during the past 450 years.

† The desirability of retaining the term "encephalitis lethargica," which was originally introduced by Economo[5] and adopted by the Local Government Board,[13] has been called in question. Kinnier Wilson[24] objects to the term on the ground that it is illegitimate to apply a clinical adjective to a pathological substantive. A. J. Hall advocates "sleeping palsy" for popular use, since it is less cumbersome and at the same time expressive, distinctive, and non-committal. Exception may, indeed, be taken to the adjective "lethargica," since lethargy, although a characteristic feature, is not perhaps a constant accompaniment of the pathological process. There are reasons for believing that lethargy may be a focal mid-brain manifestation, and it is quite possible that further pathological observation may demonstrate that the effects of the causal virus are at times confined to parts other than the brain stem. This being so, it would appear to the writer to be inexpedient in the present state of knowledge to attempt to supersede the current nomenclature by a clinical appellation which in the near future may perhaps be replaced with advantage by a more appropriate ætiological terminology.

The Characteristic Clinical Picture

The *mode of onset* varies As a rule, the symptoms develop gradually, and even in very severe cases it may be a few days or even a week or two before they become pronounced Amongst the prominent earliest symptoms I have observed are the following, viz Abnormal drowsiness, with a tendency to fall asleep when reading or working, diplopia, defective vision, consequent upon paresis of accommodation, a feeling of light headedness, some loss of emotional control, pronounced constipation; difficulty in passing urine, and severe peripheral pains simulating a localised neuritis In other cases no such prodromal period is observed The patient may go to bed feeling in his usual health and wake next morning presenting well marked manifestations of the disease Occasionally the onset is apoplectiform Thus, three of my patients fell suddenly to the ground unconscious A rise of temperature, usually accompanied by headache, an increase in the state of apathy, and sometimes vomiting, marks the true onset of the illness Exceptionally restlessness and, it may be, mental excitement are observed in place of the characteristic lethargy

A recognition of the various modes of onset is necessary in relation to early diagnosis I would recognise four groups of cases in this connexion —

(*a*) An asthenic or somnolent type, to which the great majority belong

(*b*) A meningitic type, to which A J Hall especially has drawn attention

(*c*) An apoplectiform type

(*d*) A neuralgic type which is characterised by very severe pain referred to one or more extremities or to the head.

A typical case of encephalitis lethargica presents a striking physiognomy

The patient usually lies on his back, the eyes half closed, the face may be flushed and covered with beads of perspiration (in three cases unilateral sweating and in two a conjunctivitis was observed) Often the patient will lie motionless for hours at a time without making any attempt to alter his position He makes no complaint, he appears to take no interest in his surroundings, and yet there may be only a moderate degree of somnolence Again, in other cases the patient, though oblivious to his surroundings, is in a restless state, he mutters to himself or talks aloud He is evidently disorientated, for his delirium refers to his daily occupation Thus, one of my patients, a sergeant was constantly drilling his men, another, a lawyer, giving instructions to his clerks, and a third, a business man, carrying on animated conversations by telephone The lips are seen to move, and yet the face is often strikingly immobile and expressionless There may, however, be some tremor and occasionally spasmodic twitchings of the facial muscles From time to time the patient fumbles with the bedclothes, and an irregular tremor or spasmodic jerkings of the limbs may then be noticeable The general appearance may, indeed, closely resemble that of a case of delirium tremens Although the patient may appear to be in a state of semi-stupor, he will often when addressed, awake from his somnolent condition or break off in the middle of his delirium and reply intelligently to questions put to him, although his responses are slow, his intonation monotonous, and his articulation often somewhat indistinct In two cases a complete disorientation, both as regards time and space, was noted Pains in the limbs, when any attempt is made to move the patient are not uncommonly complained of Variations in the lethargic state, from a slight degree of somnolence to actual coma in severe cases may be observed from time to time Paradoxical as it may seem, sleeplessness is not infrequent When the stupor is pronounced loss of control over the sphincters and difficulty in swallowing are observed

Upon examination the temperature will generally be found to be slightly elevated if the patient is seen within the first few days of his illness (in my experience the temperature rarely rises above 101 or 102° unless towards the termination of a fatal case) The temperature usually falls in a few days, although it may remain elevated for two or three weeks after which it is commonly subnormal Exceptionally a slight rise of temperature, persisting for a day or two, is observed at a later date The pulse rate is somewhat accelerated and not infrequently out of proportion to the febrile disturbance The tongue is usually very dry, and it may be coated A moderate degree of neck rigidity, together with Kernig's sign, may be present, though both these phenomena are exceptional In two or three cases I have observed a diffuse erythema and in one case herpes labialis

Focal nervous symptoms referable to the ocular muscles are of very frequent occurrence Thus, bilateral ptosis a divergent strabismus, some defect of the ocular movements, notably a paresis of the muscles supplied by the third nerves, nystagmus, inequality of the pupils, which may be widely dilated and usually respond sluggishly to light, and paresis of the ciliary muscles with consequent impairment of vision due to defective accommodation, are often observed Not infrequently, too, there is some paresis of the facial muscles, as a rule, though not always, bilateral, and amounting sometimes to a complete paralysis Generalised weakness of the limbs, more accurately described as a profound asthenia than a paralysis, is the rule Sometimes, however, a definite mono or hemi paresis is present Katatonia is a common symptom when the somnolence is pronounced The knee jerks show no constant alteration, they may be exaggerated, while occasionally they are absent The plantar reflexes are usually of the flexor type, though exceptionally an extensor response can be elicited Changes in the fundus oculi are seldom met with although in several cases I have seen engorgement of the veins, and in two cases in which the diagnosis was not absolutely certain, and which are not included in this series, an optic neuritis was present I have met with no case in which there was a history of a fit One patient exhibited pronounced maniacal excitement Upon lumbar puncture a clear cerebro spinal fluid, which is not under pressure, but which may contain a slight excess of cellular elements of the lymphocyte type is usually obtained In two cases of probable encephalitis lethargica, not included in this series, altered blood was withdrawn on lumbar puncture As to the blood my observations are in accord with those of Vaidya and of William Boyd[2a] that a leucocytosis is exceptional and, when present, of slight degree, while in four of my cases in which differential counts were made no definite abnormality was detected In two cases sugar and in one case albumin and blood were present in the urine Enlargement of the spleen was observed in no instance Catarrhal symptoms referable to the respiratory tract are, in my experience, unusual, they certainly do not occupy a prominent place in the clinical picture

Salient Clinical Features

The salient clinical features of the common type of encephalitis lethargica may be conveniently classed in three groups as follows —

(1) *Febrile disturbance which is met with almost invariably in the initial stages Although as a rule slight in degree and consequently apt to escape detection, this symptom is important in relation to diagnosis Accompanying the fever certain general symptoms, such as headache and, less commonly, giddiness and vomiting, are often met with during the earlier days of the illness*

(2) *A state of progressive somnolence apathy and lethargy, from which the affection derives its appropriate designation This symptom, which is present in the great majority of cases is associated with slow mental action, want of initiative and when pronounced, as a rule, with an occupational delirium*

(3) Symptoms referable to focal disturbances in the function of the nervous system, a consequence of the structural changes produced by the morbid process These vary according to the region of the nervous system in which the lesion is situated or most pronounced The frequency with which paresis of the ocular muscles notably of those supplied by the third nerves (ptosis, strabismus, defective movements of the eyes, nystagmus, unequal and sluggish pupils, and defective accommodation), and paresis of the face are met with is explained by the fact that in the majority of cases the mesencephalon and pons are the special regions selected by the process

Before proceeding to refer to exceptional types and to allude to certain problems of differential diagnosis I would emphasise two points In the first place, let me again remind you of the various modes of onset to which I have referred and the early premonitory symptoms met with in certain cases, while, secondly, it is necessary that you should realise that, although the focal nervous symptoms commonly make their appearance in the initial stages of the illness, they sometimes continue to develop for two or three weeks, in other words, the local lesion may be progressive

Diagnosis.

The above description is applicable to pronounced cases of what may be termed the characteristic mesencephalic type of the disease. All cases, however, do not present such a symptomatology; indeed, I know of no affection which manifests such a multiplicity of clinical pictures, and, consequently, offers so many difficulties in diagnosis. The symptomatology varies according to the mode of onset, the preponderance of general or focal manifestations, and the region of the brain affected by the lesion. Since encephalitis lethargica may closely resemble a number of different conditions, since no single symptom can be regarded as pathognomonic, and since pathological methods afford no help of a positive kind in its recognition, diagnosis by exclusion necessarily plays a prominent rôle, and the physician's general experience and clinical acumen may consequently be severely taxed.

As an aid to diagnosis it is convenient, as suggested by MacNalty[13] in his excellent article, to recognise a number of clinical types, among which the following are illustrated by cases which have come under my observation.

(1) The common or mesencephalic type, to which the great majority of cases belong. This type is characterised, as has been mentioned, by febrile disturbance and by a state of apathy, somnolence, general lethargy, or even stupor, associated with paresis of the ocular and facial musculature. The diagnosis here presents little difficulty.

(2) A type in which the lethargy, somnolence, and sometimes symptoms of meningeal infection are pronounced, while focal nervous symptoms are either inconspicuous or absent. Cases of this kind are by no means infrequent. They are apt to be mistaken for a variety of other conditions, among which I would especially mention the following, which I have known to give rise to difficulty in diagnosis, viz.: cerebro-spinal fever, tuberculous meningitis, influenza, typhoid fever, cerebral arterio-sclerosis, and uræmia.

(3) Cases which present striking focal symptoms referable to the mesencephalon (ophthalmoplegia, facial paralysis, &c.), though the initial febrile disturbance has been so slight and evanescent that it has escaped notice, and the somnolence and lethargy are inconspicuous and overshadowed by the focal manifestations. In three cases of the kind which I have met with a diagnosis of intracranial tumour had been previously advanced by a competent observer. It is, indeed, very probable, as Nonne has suggested, that some of the reported instances of supposed intracranial neoplasm, in which the growth of the tumour had apparently become arrested, have been cases of encephalitis.

(4) An abortive type, illustrated by one of my cases, in which the symptoms, never pronounced, pass off more or less completely in the course of two or three weeks.

(5) A type which closely resembles paralysis agitans. The similarity which some cases of encephalitis lethargica present to paralysis agitans has been emphasised by Farquhar Buzzard.[8] Several such cases have come under my notice. The resemblance was particularly striking in the case of one patient, in whom the expressionless face, the monotonous voice, attitude and gait so closely resembled Parkinson's disease that, had no history of the illness been available, it would have been difficult to differentiate between the two conditions. In another case, a rhythmic tremor confined to one arm presented features indistinguishable from that of paralysis agitans, while the immobility of the face emphasised the similarity. Here, again, a history of a febrile onset with diplopia, together with the subsequent course of the illness, placed the diagnosis beyond question. No doubt the phenomena met with in this type of the disease are to be explained by implication of the red nucleus or rubro-spinal tract.

(6) Cerebellar ataxia was a striking feature in one case in which the symptoms suggested the possibility of disseminated sclerosis, an alternative diagnosis which in two other instances was only dismissed after full consideration of all the facts. In a second case in which recovery was eventually complete, the association of cerebellar symptoms, with somewhat severe headache and vomiting, raised the question of a tumour in this region of the brain.

(7) Progressive focal symptoms referable to the motor nuclei of the lower cranial nerves in the medulla, and unaccompanied by any general manifestations, were observed in one case in which the diagnosis between tumour and encephalitis remained doubtful until eventually determined by post-mortem examination. In distinguishing between tumour and encephalitis I would in passing remind you that the difficulty is accentuated by the fact that neoplasms situated in the brain stem are often unaccompanied by indications of increased intracranial pressure (headache, vomiting, and optic neuritis), while, further, the focal nervous symptoms in encephalitis lethargica may be progressive.

(8) A cerebral localisation was observed in three cases; in two of these hemiplegic symptoms, in the third a monoplegia, were, in my opinion, dependent upon an encephalitis. The diagnosis in two of these cases was based on the fact that there was a history of a definite febrile onset with ocular palsies, while in none of the three were there indications pointing to any other factor which might account for the paralysis. Recovery was complete in all, a fact which afforded corroborative evidence as to their nature.

When one remembers that encephalitis lethargica may commence with the suddenness of an apoplexy, as I have personally seen on three occasions, the difficulty in differentiating cases of the kind from cerebral hæmorrhage or occlusion of the cerebral vessels is at once apparent. The absence of signs of cardio-vascular disease and the exclusion of syphilis are matters of importance in this connexion, while the rarity of hæmorrhage into a glioma which has previously given rise to no symptoms renders such a possibility unlikely. Farquhar Buzzard[8] has described cases with hæmorrhage on the surface of the brain. Attention has been drawn to the fact that emotional disturbance is not infrequently observed in cases of encephalitis lethargica. In the absence of fever or of certain indications of an organic process an erroneous diagnosis of functional disease can be understood. I made this mistake in one case in which the temperature, which was normal at the time of my examination, rose two days later; the patient died within a week from symptoms which appeared to be undoubtedly due to an encephalitis.

The above remarks will serve to indicate the protean symptomatology of encephalitis lethargica and at the same time to illustrate some of the numerous difficulties which may arise in the diagnosis of this disease. A case may, indeed, present very different features, and consequently raise very different diagnostic problems, according as it is seen during the prodromal stage, in the febrile period, or at a later date when the general symptoms have largely passed off. In the great majority of the cases I have seen encephalitis lethargica had not been previously suspected. Time and again a practitioner, when asking me to see a patient, has told me that he was quite at a loss as to the diagnosis, since the case I was to see presented features he had never previously met with.

Pathological Features.

Anatomical observation demonstrates that the affection under discussion is dependent upon an encephalitis which shows a special, though not invariable, predilection for the brain stem. Since Dr. James Miller will review the morbid anatomy of the disease and narrate his personal observations, I do not propose to refer to this aspect of the subject. At the same time I should like in passing to make a brief reference to the correlation of the morbid anatomy and symptomatic features. Let me draw your attention more particularly in this connexion to the infiltration of the tissues, and particularly to the infiltration of the walls of the blood-vessels in the affected region with cells of the lymphocyte type, to the œdema of the brain substance, to the small hæmorrhages which are occasionally observed, and to the neuroglial proliferation which is met with here and there.

The histological characters of the lesion indicate its infective nature and afford an adequate explanation of the associated febrile disturbance, while its distribution and anatomical features account for the frequently bilateral, though often asymmetrical, and usually incomplete, character of the pareses, the occasional variation in the intensity of the symptoms, and the fact that although in some cases the patient makes a complete recovery in others some permanent disability persists. The circumstance that the anatomical changes are confined to the mesencephalon and pons, or are, at any rate, usually more intense in these regions, is only what might be expected in view of the focal nervous symptoms which are most commonly met with.

The paresis of the oculo motor, of the facial, and, it may be, of other cranial nerves, is evidently due to involvement either of their respective nuclei or of their nerve fibres as they traverse the substance of the brain Nystagmus, which is so frequent, may be accounted for by interference with the function of the direct nerve supply to the ocular muscles or to implication of the posterior longitudinal bundle The not infrequent mask like face and the tremor, which is sometimes met with, are doubtless to be explained by interference with the function of the red nucleus or rubro spinal tract Again, the cerebellar ataxia observed in two of my cases may be accounted for by implication of the cerebellar peduncles or the cerebellum itself, while the general asthenia may be explained by involvement of the motor nuclei in the spinal cord (?) It may be that the pains in the limbs and the tenderness of the muscles sometimes complained of are dependent upon changes in the peripheral nerves, although no pathological observations have so far been recorded in proof of this suggestion Babinski's sign when present, and exaggeration of the knee jerks are obviously a consequence of interference with the efferent cortico spinal tracts

The mode of production of the lethargic state is less apparent

Since headache is rarely severe and vomiting, when it occurs, is a transient symptom, since optic neuritis is seldom, if ever, met with, and since the cerebro spinal fluid is not under pressure, it would seem that the state of lethargy is probably not dependent upon a general increase of intracranial pressure—a conclusion which is supported by post mortem evidence Again, a study of the literature would seem to indicate that generalised œdema of the brain is not a pronounced or constant feature The question consequently arises, May the lethargic state possibly be explained by the focal lesion in the brain stem? The optic thalamus, as is well known, constitutes a receptive centre for all afferent stimuli, and the view has been advocated by MacNalty[13] that the lethargic state may be due to an interruption of the afferent stimuli passing to the thalamus This hypothesis is an attractive one The circumstances that in both sleeping sickness and basal syphilis perivascular infiltration is a prominent feature, and that in the former drowsiness is a constant, in the latter a not infrequent, symptom, are, I think, suggestive in this connexion Further, I have seen more than one case in which I diagnosed an encephalitis of the cerebrum in which drowsiness was not, at any rate, a striking feature

The specific cause of encephalitis is as yet unknown

Von Wiesner,[23] working in association with von Economo, affirmed in 1917 that he had discovered a diplostreptococcus to which he attributed specific properties This author's contentions have, however, been criticised by Kinnier Wilson[21] and others, and his deductions have not been accepted as conclusive The careful bacteriological observations of McIntosh[12] were of a negative character Marinesco,[15] and da Fano and Ingleby[6] have described intracellular bodies which may possibly be of an organismal nature but their observations demand further corroboration James Miller investigated bacteriologically the cerebro spinal fluid blood, fæces, urine, and pharyngeal secretion in four of my cases, with a negative result in so far as he found no pathogenic organisms Animal experiments carried out by McIntosh[13] and others have been of a negative kind Recently, however, Strauss, Loewe and Hirshfeld[21] have affirmed that they have succeeded in producing an encephalitis experimentally It has been suggested that the causal organism may obtain access by the nasal mucous membrane One of my cases was of special interest in this connexion, for the encephalitis developed while the patient was in hospital a few days after the removal of a nasal polypus This man, who stated that he had had a purulent discharge from the nose for some time previously, was it is interesting to note, proved by Dr Miller to be a meningococcal carrier

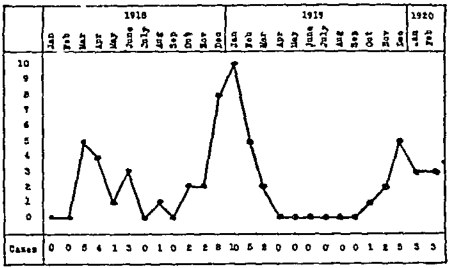
General Ætiological Considerations

Although no cases of encephalitis lethargica have, so far as I am aware, been hitherto reported from Scotland, my experience suggests that the disease has probably been as prevalent north of the Tweed as in England and Wales This statement is supported by figures extracted from the mortality returns from Scotland for the first three months of 1919, which Dr J. C Dunlop, the Superintendent of Statistics, has kindly placed at my disposal

According to these figures, "The total number of deaths certified as due to encephalitis during the first quarter of the year 1919 was 58, in the corresponding quarter of 1918 the number was 11, in that of 1917, 14, in 1916, 20, and in 1915, 9" While it is to be remembered that a number of different conditions are included under the term "encephalitis," the figures are at least significant In 17 of the 57 cases I have met with the patients were living in Edinburgh when the first symptom appeared, while, with four exceptions, the others were residing in a town Two patients were attacked while on board ship, one, a soldier, was in camp, while one patient was living in a somewhat isolated farmhouse in the country This experience is of interest, since R J Reece,[20] from an analysis of the cases of encephalitis lethargica occurring in England and Wales during the first quarter of 1919 during which period notification was compulsory, finds the proportion of urban cases to cases occurring in rural districts in terms of the population 9 4 to 4 9

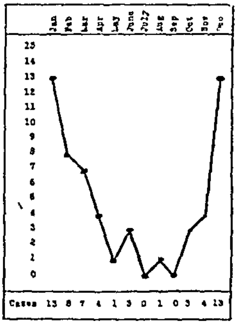
The sexes appear to be about equally liable Thus, 29 of my patients were males, 28 females, of the latter, 14 were married The average age of the males at the time of onset was 43, that of the females 35 The youngest patient in the series was 17, the oldest 75 Reece's statistics, however, show that a number of cases have been notified in children and even in infants Although Batten and Still[2] described four cases of "epidemic stupor in children" so long ago as May, 1918, there appears to be good reason for believing that encephalitis lethargica is very rare in early childhood Since 41 of my patients were seen in consulting practice, 10 in civil, and 6 in military hospital practice, it would seem that encephalitis lethargica is at least as common among the middle as among the lower classes The majority of the patients I have seen had been apparently in good health previously, Bassoe,[1] however, states that nearly all his patients had been in a more or less run down condition prior to the onset Instances of more than one case in a family, though very unusual, have been reported by Harris,[9] Farquhar Buzzard, and MacNalty,[14] while Reece[20] has met with a case of a nurse who contracted the illness while attending a patient suffering from the disease My experience indicates that syphilis, alcohol, and trauma appear to play no part in the causation of encephalitis lethargica

CHART I



Date of onset in 57 cases of encephalitis lethargica

CHART II



Month of onset in 57 cases of encephalitis lethargica

Seasonal Incidence.

Dr S P James,[10] in discussing the epidemiology of encephalitis lethargica with reference to the earlier cases observed in the spring of 1918, states "Most of the cases reported occurred during the seven weeks between the 16th March and 4th May and according to the figures, the disease reached its maximum prevalence somewhat slowly, maintaining its prevalence for a comparatively brief period and gradually declining" This authority is of opinion that the numbers of cases at that time reported were less an index of the seasonal prevalence of a new disease than they were the index of the rise and decline of activity in discovering and reporting cases of an old one Since the above remarks were made no evidence so far as I am aware, has been published which either supports or confutes the question of a seasonal incidence in relation to this disease My own experience, although I admit the number of cases (57) is perhaps too small to justify definite conclusions, affords, I think, suggestive evidence in this connexion. I would draw attention to the following points which are illustrated in the accompanying figure. Firstly, in 5 of my cases the symptoms developed during March, 1918. Secondly, I met with but few cases which developed during the summer months of 1918. Thirdly, in no less than 23 cases the illness commenced during December, 1918, and January and February, 1919. Fourthly, I did not meet with a single case in which the date of onset was between April and September, 1919, although, it is true, Dr. Byrom Bramwell observed 3 cases during this period. Fifthly, during the past three months I have observed 11 cases. These figures seem to indicate that there is a tendency for encephalitis lethargica to occur during the colder months of the year.

Botulism, Poliomyelitis, and Influenza.

When the earlier cases of encephalitis lethargica were reported in this country the suggestion was advanced that the condition might be botulism. I am indebted for my knowledge of this condition to Dickson's monograph.

The term botulism is applied to a type of food poisoning which results from the ingestion of sausages, tinned beans, and other articles of diet contaminated with the *Bacillus botulinus*. Outbreaks of this type of food poisoning have been reported from time to time for many years past in various parts of Germany and Austria-Hungary, as also in Denmark, America, and elsewhere. A group of cases was, indeed, described in England in 1860. The symptoms of botulism evidently bear a close resemblance to those of encephalitis lethargica. Thus, in both ophthalmoplegia, general muscular feebleness, defective salivary secretion, constipation, retention of urine, and difficulty in swallowing are common features. On the other hand, botulism is preceded by gastro-intestinal symptoms, there is no febrile disturbance, the cases occur in groups, and their origin can be traced to a food product, while the *Bacillus botulinus* of van Ermengem is, it is affirmed, readily detected in the stools.

Acute poliomyelitis is another disorder which presents points of similarity to encephalitis lethargica, and it has been suggested that the latter disease may be due to a modification of the virus which is responsible for the former.

The two affections resemble each other in that both are dependent upon an infective process, and in both the causative agent attacks the central nervous system; while, further, the sporadic manner in which cases of both disorders crop up throughout the country is very similar. There are, however, strong arguments which are opposed to the view that the resemblance is more than superficial. Thus, I have met with no cases of encephalitis lethargica which presented a localised flaccid palsy such as one meets with in poliomyelitis. Again, when some years ago poliomyelitis was comparatively frequent throughout the country cases of encephalitis lethargica were not observed. Further, according to Reece,[20] poliomyelitis showed no increase throughout England and Wales in the first three months of 1919, though encephalitis lethargica was prevalent. Again, the age incidence is different, poliomyelitis being essentially a disease of children and young adults, while encephalitis lethargica is much more frequent in adult age. Lastly, poliomyelitis occurs especially in the late summer and autumn, while the evidence I have adduced suggests that encephalitis lethargica is met with during the colder months of the year. I might mention other points of difference, but those I have noted are, I think, sufficient to show that the two affections are in many respects dissimilar.

Influenza has of late been rife throughout the country, and the question arises whether the disease under consideration may be due to the virus of influenza, and if this is not the case whether there is any relationship between the two conditions.

It is noteworthy in this connexion that a number of cases of encephalitis were recorded by Leichtenstern[11] and other German writers at the time of, and subsequent to, the great influenza epidemic of 1889-90, and that about the same time a peculiar disease termed "Nona,"[1] which was characterised by pronounced drowsiness, was very prevalent in Austria and Northern Italy. Nauwerck,[17] in 1893, discovered the Pfeiffer bacillus in the brain of a fatal case of encephalitis, and Cantani, three years later, succeeded in producing an encephalitis experimentally in rabbits by injecting a dead culture of the influenza organism. These facts are very suggestive, and Oppenheim and Cassirer,[10] in their monograph upon encephalitis published in 1907, describe an influenzal type of encephalitis which, to judge from their description, is so very similar as to be almost indistinguishable from encephalitis lethargica. That an encephalitis may occur in the course of influenza just as it does very exceptionally in the course of a great variety of infective disorders is highly probable, but the available facts do not, in my opinion, justify the conclusion that epidemic encephalitis, which is almost certainly due to a specific infection, is dependent upon the same virus as influenza. The following observations are of interest in this relation. Firstly, in no single instance among the cases of encephalitis I have met with, in which the patient was living in a private house, were there cases of influenza in the family. Secondly, I have observed no case of encephalitis in which there was evidence of infection from person to person. Thirdly, with a few (? two or three) possible exceptions, in no instance was the illness ushered in by catarrhal symptoms, prostrating frontal headache, or severe pain in the back and limbs such as are recognised to be common clinical features in many influenza epidemics. Fourthly, with very few exceptions, a history of a recent attack of influenza was not forthcoming. Fifthly, during the past three months, while there has been comparatively little influenza in Edinburgh or its neighbourhood, cases of encephalitis have not been infrequent. Finally, the circumstance that two infective disorders are epidemic at the same time is no proof that they are dependent upon the same infection. It may well be that common predisposing factors exist which, by lowering the general resistance, determine their simultaneous incidence.

Prognosis.

The mortality in encephalitis lethargica varies considerably, to judge by the recorded experience of different observers.

Thus, 6 cases of 11 reported by Economo, 7 of Netter's 15 cases, 2 of Wilson's 13 cases, and none of Hall's[8] 16 cases died, while 9 of the 57 cases I have observed terminated fatally. The mortality among 126 cases collected by the Local Government Board in 1918 was 20 per cent.; while of the 61 cases observed in the Winnipeg epidemic more than a third died. According to Netter, death may be due to an extension of the encephalitis to the medulla, to pneumonia secondary to paralysis of the vagus or glosso-laryngeal, or to general wasting complicated by bedsores. The ages at death of the seven patients included in my series were as follows: 17, 18, 24, 27, 32, 42, 45, 47, and 60. Five of my patients died between the eighteenth and twenty-second day after the onset of symptoms, one patient dying on the seventh day, another during the fourth week. In this connexion it is of interest to note that the average duration of the illness in the 25 fatal cases collected by the Local Government Board was 21 days, the shortest being 6, the longest 49 days.

My experience does not justify me in formulating any very definite conclusions in relation to prognosis. The circumstance that the three patients in whom the onset was apoplectiform made a good recovery, as did all the patients (4) in whom pronounced meningitic symptoms were a prominent feature in the early stages, is of interest, but may be explained by coincidence. In three of my nine fatal cases, all of which presented a mesencephalic localisation, the general symptoms were pronounced and the focal manifestations comparatively insignificant. If the patient survives the first three weeks of his illness the probabilities are all in favour of recovery. A high temperature, pronounced and deepening stupor, with accompanying dysphagia, and loss of sphincter control are symptoms of serious moment, though not necessarily indicative of a fatal termination.

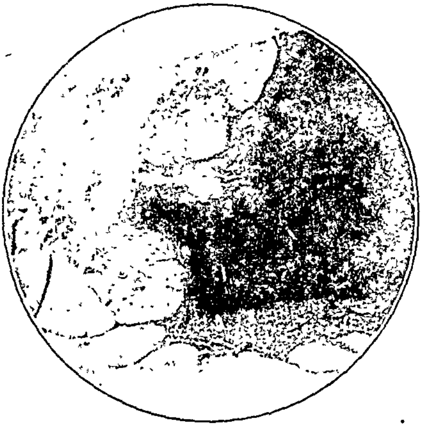
Improvement is almost always slow in those cases which eventually recover. The patient may remain for weeks or even months in a state of semi-stupor. On the other hand, abortive cases are met with, and are very possibly much more frequent than my experience suggests, in which recovery is practically complete after two or three weeks. Sometimes the general phenomena pass off in a few weeks, leaving merely focal symptoms, which may be very persistent. Complete, or practically complete, recovery was the rule in the majority of the cases I have met with. In several, however, such symptoms as general weakness, slow mental action, and defective concentration, want of initiative, giddiness, defective vision, sluggish pupils, and ocular pareses with diplopia still persist and will probably prove to be permanent. Hall[8] states that recovery was complete and absolute in seven of his cases; practically complete in six cases, some slight trace of illness being left behind; while three cases, after six months, were still far from recovery. I am inclined to think from my experience that the longer the state of somnolence or stupor persists the more likely are the focal nerve symptoms to be permanent. Buzzard and Greenfield point out that some time after the patient has recovered from the original illness a relapse characterised by involuntary movements may occur. I have observed two instances of the kind.

Treatment.

No therapeutic means have so far been proved to have an undoubtedly beneficial effect upon the course of the disease. A specific remedy has yet to be discovered.

Obstinate constipation is the rule in the early stages, and the use of calomel and other purgatives has been advocated for its relief. I am inclined, too, to think that I have seen improvement in the general lethargic state as a sequel to a loose movement of the bowels. Hexamin in doses of 10 gr. four-hourly was administered in most of the cases I have seen during the first days of the illness, but whether any definite beneficial result was thereby effected I am not prepared to say. Three cases which were under my care in hospital for a period of several weeks afforded opportunity for observing the effects of remedies. Since in sleeping sickness and syphilis of the cerebral vessels a state of somnolence or stupor is observed, and since both these affections are characterised pathologically by a perivascular infiltration, the possibility that iodides or arsenic might prove beneficial suggested itself. Anticipations were, however, not fulfilled, for these drugs, given in full doses, produced no definite improvement. Netter[18a] states that he has seen disastrous results follow the use of neosalvarsan, while he has seen no beneficial effect produced by antimony. Strychnine administered hypodermically in increasing doses up to a twelfth of a grain appeared to me to be of undoubted benefit in more than one case in which the state of somnolence was unduly prolonged. In one case I was rather inclined to think that quinine was of some service. Netter[18a] is of opinion that he has seen benefit follow the production of a local abscess by the injection of 1 or 2 cm. of turpentine into the thigh.

FIG. 1.



Large hæmorrhage in the substance of the cerebellum near the surface. Numerous minute hæmorrhages

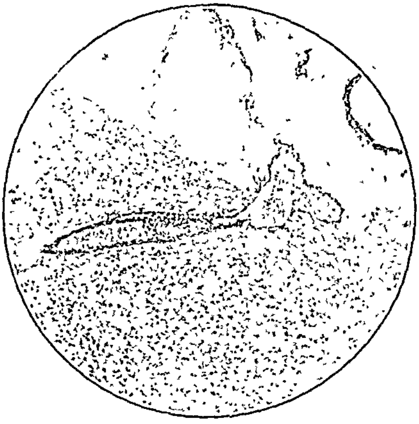
Note on Post-mortem Findings.

The material forming the basis of the pathological inquiry consisted of five fatal cases at the Edinburgh City Hospital and Royal Infirmary.

Morbid anatomy.—As McIntosh observes,‡ as a rule the autopsies in encephalitis cases are negative; in other words, no macroscopic changes sufficient to account for death are present. In one of the cases which died in the City Hospital in March, 1919, there was a well-marked purulent bronchitis and broncho-pneumonia, but as similar appearances were found in cases dying of "influenza" about that time no great stress could be laid upon the observation. In another case, which was under the charge of Dr. Chalmers Watson, a surface hæmorrhage was observed in the cerebellum measuring ½ inch across, with extravasation of blood under the pia arachnoid at the base of the brain. (Fig. 1.) A similar case is recorded by McIntosh, so that in cases of so-called meningeal hæmorrhage the possibility must be borne in mind that one is dealing with encephalitis lethargica. In all the five cases the surface vessels of the brain were injected, and on section the grey matter of the brain, cerebellum, and cord were unusually dark. There was some excess of cerebro-spinal fluid at the base of the brain. This fluid was clear and there was no exudate or opacity about the meninges. With the exception of the large hæmorrhage and some smaller ones in the neighbourhood in the case already mentioned, no extravasations were found in the brain substance, although a dilated vessel often gave the appearance of such. In one of the cases, a cyst, the size of a walnut, was present at the tip of the left temporo-sphenoidal lobe.

Microscopic appearances.—In each case the chief changes were met with in the pons and neighbouring portions of the mid-brain. In one instance the changes extended into the cervical cord, but the cerebellum (with the exception of the case already mentioned) and the cerebral cortex were relatively free. In relation to the distribution of the disease in the central nervous system the question arises as to what is to be regarded as the most characteristic lesion. In my experience little reliance can be placed upon the chromatolytic changes in this respect. The ravages of post-mortem change and the frequent coincident toxic effects on the ganglion cells render chromatolysis as a criterion for the extent of the disease most unreliable. Œdema, again, although a striking change in certain situations, is often ill-defined and spreads beyond the area of brain associated with clinical symptoms. A much more sure guide to the actual degree of irritation is the perivascular infiltration. This change, although not an indication of such profound and permanent alteration as the proliferation of the neuroglia or hæmorrhage, is probably the best guide to the extent of the affected nervous tissue.

FIG. 2.



Section of mesencephalon close to surface, showing how in encephalitis a meningeal vessel acquires the sheath of inflammatory cells only after penetrating the brain substance.

Changes in the nerve cells.—As already stated, the disturbances in the Nissl spindles and nuclei of the nerve cells are, in view of concomitant post-mortem and toxic changes, neither striking nor uniform. They certainly occur, as is evidenced by the loss of staining of the Nissl bodies and pale staining of the nucleus (although the nucleolus, as a rule, stains well), but the more advanced changes of disappearance or extrusion of the nucleus seldom occur. Moreover, these changes may not be met with in very striking degree in the cells of nuclei of nerves which are clinically affected. These degenerative changes in nerve cells are widely distributed. They occur not only in the mid-brain nuclei but in the grey matter of the cord and cerebellum. Marinesco, describing two cases of the disease,§ lays special stress upon changes in the Purkinje cells of the cerebellum. He speaks of them being profound. Da Fano and Ingleby also refer to nerve cell changes of a chromatolytic nature as being severe and widespread. In my series of cases no such striking changes were seen. I agree with McIntosh (loc. cit.) when he states that "in no instance was there that complete absence or destruction of the ganglion cells which occurs in the spinal cord in poliomyelitis."

Perivascular infiltration.—Certainly the most arresting microscopic change is the presence in large numbers of round cells in the perivascular lymph sheath of the vessels which have entered the brain substance. In my experience the vessels of the meninges are not affected in this way. Indeed, it is quite striking to observe the sudden appearance of the casing of cells as the vessel passes from the pia arachnoid into the cerebral tissue. (Fig. 2.) Outside, even in sulci and depressions, there is little evidence of cellular infiltration of the meninges. This is apparently in contrast to the observations of Loewe, Hirschfeld and Strauss ¶ in encephalitis experimentally produced in monkeys and rabbits. In one of my cases the perivascular infiltration was clearly seen in sections of the lower cervical region of the cord.

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‡ Reports to the Local Government Board, New Series, No. 121.

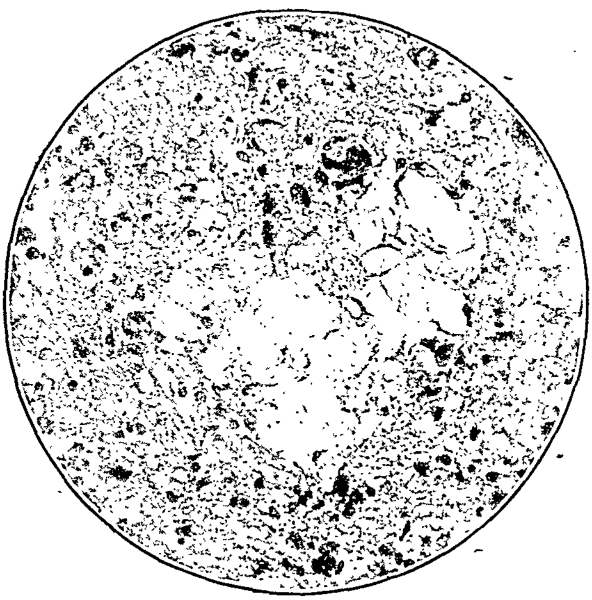
§ Ibid.

Proceedings of the Royal Society of Medicine, 1919, vol. xii., Section of Pathology, p. 42.

As regards the nature of the cells taking part in this infiltration, a majority appear to me to be lymphocytes or cells indistinguishable from such. McIntosh differentiates a certain number of polyblasts of Maximow and plasma cells. Marinesco describes fibroblasts, and in certain situations eosinophils. I have seen polymorphonuclear leucocytes in considerable numbers in one case.

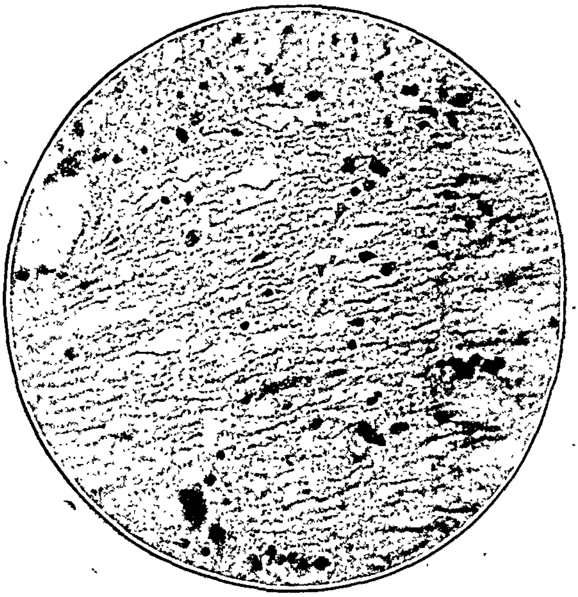
Œdema.—This is a term which, when applied to the central nervous system, is a little apt to be loosely used. Dilatation of the perivascular lymph space may be artificially produced by imperfect fixation. This change is, however, too constantly present and striking in encephalitis to be of the nature of an artefact. In addition to this, often widespread, manifestation of œdema there is an interstitial dropsy of a more significant type. In my series of cases it has been a striking feature of parts related to the third nucleus and its fibres as they leave the pons. (Fig. 4.) The initial change is a bubble-like clear space which appears in the substance of the pons separating the nerve elements from one another and extending often in a longitudinal fashion for some distance. This spread is particularly well seen along the course of the third nerve before it leaves the pons, resulting in a splitting and separation of the fibres from one another. The same change is also well seen in the substantia nigra (Fig. 3).

FIG. 3.



Section of mesencephalon showing interstitial œdema of substantia nigra. There is also scattering of the normal pigment.

FIG. 4.



Œdema of the fibres of the third nerve before its exit from the mesencephalon.

Hæmorrhage.—The frequency of hæmorrhage is perhaps exaggerated. This is probably more characteristic of poliomyelitis than of encephalitis. It shows itself first, as a rule, in the perivascular lymph space. This space, instead of being empty or containing round cells, is filled with red blood corpuscles. Less frequently these hæmorrhages occur into the cerebral substance, and occasionally, as already mentioned, they occur on the surface of the brain. In my series of cases, except in one instance, hæmorrhage was not a conspicuous feature. In this case there were numerous hæmorrhages, one of them large, into the substance of the cerebellum close to the surface. The blood extended along the subarachnoid space for some distance and blood was present in the cerebro-spinal fluid. Hæmorrhages of this type no doubt account for the occasional occurrence of a blood-stained fluid obtained by lumbar puncture.

Pigmentation.—This appears to have been a striking feature of the cases studied by Da Fano and Ingleby. These observers found the pigment in nerve cells both near and at a distance from points of cell infiltration. In my series of cases I found little evidence of such pigmentation. It was present in the cells of the fourth nucleus in one instance, but I saw no evidence at all of the other "granules" described by Da Fano and Ingleby. Many of my sections were stained by Leishman's method, but I failed to observe the bluish-white corpuscles, oval or rounded in form, seen by the same observers. Apparently Da Fano and Ingleby (loc. cit.) relate the pigment granules and corpuscles to one another, suggesting that they may be of the nature of a causal germ.

An interesting alteration in the distribution of the pigment of the substantia nigra was a striking feature of all my cases. The pigment, instead of being confined to the nerve cells themselves, was scattered in rounded masses in the surrounding tissues, both free and inside phagocytic cells (Fig. 3). There was at the same time a proliferation of the neuroglia cells in the neighbourhood, the pigment being largely contained in the proliferated neuroglia cells. Not infrequently these cells, as Marinesco points out, contain several nuclei.

Summing up the histological changes I would give chief place to: (1) Hæmorrhage (a rare occurrence in my series of cases); (2) œdema of the nerve tissue; (3) proliferation of neuroglia; and (4) infiltration of nerve tissue and perivascular lymph sheath with cells, usually lymphocyte-like in type. In the cases which I have examined these changes are seen most strikingly in the ventral portion of the pons, especially in the region of the substantia nigra, implicating the fibres of the third nerve as they pass out, and thus accounting for one of the most common symptoms of the disease.

In no case were any organisms, or bodies suggesting organisms, seen.

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DONATIONS AND BEQUESTS.—By the will of the late Mr. Frederick John Warner, of Brighton, the testator has left about £20,000 to be divided between the London Hospital and the Middlesex Hospital.—An anonymous donor has given £1000 war stock for the "Hornshaw" bed in the Alton Cripples' Hospital.

¶ Journal of Infectious Diseases, vol. xxv., No. 5, p. 378.

THE ADVANTAGES AFFORDED BY EXTENSION IN THE TREATMENT OF DISEASED JOINTS

BY SIR W ARBUTHNOT LANE, BART , M S , F R C S ,
CONSULTING SURGEON GUY'S HOSPITAL ETC

QUITE a number of years have elapsed since my views on the treatment of tuberculous, rheumatoidal, and other conditions of joints by means of rest were first shaken and then altered by the observation of the results of the combination of movements and extension afforded by Mr Hoefftcke's appliances Up to that time I was imbued with the view, then accepted, that rest was a factor of vital importance in the treatment of diseased joints I then learnt that if sufficient extension could be exerted to take pressure off the opposing articular surfaces of the affected joint movement was often most beneficial and often accompanied with little or no pain This is an illustration of the law to which I have frequently called attention—namely, that everything that is universally accepted as true in surgery is invariably false It is not possible to exert upon all diseased joints, such as those of the spine, enough strain to enable the application of this principle Yet even in these joints it points the direction in which we should work

Effect of the Apparatus on the Diseased Joint

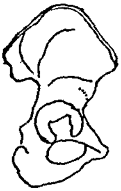
The advantages afforded by the forcible separation of the diseased articular surfaces from one another, combined with free movement, are best shown by the use of a really efficient extension apparatus for the leg, which does not interfere with the functioning of the diseased joint This is effected by the apparatus which Mr Hoefftcke has devised Not only does it exert great strain upon the articulation, keeping the surfaces from impacting on one another, but it permits of free movement of the joints of the leg, while enabling the sufferer to lead an active life It keeps the parts well supplied with blood, which flows more freely through the vessels of the affected joint, while the muscles are kept functioning normally

The method of cure is based on the same principle as that applied with so much success in the treatment of tuberculous disease of the lungs at the institutions at Frimley and elsewhere Since I first grasped the great advantage afforded by this principle, best applied by the apparatus already referred to, I have employed it largely with much success If a diseased joint is moved forcibly without being extended the articular surfaces are bruised or otherwise damaged, and acute inflammation follows only too frequently, whereas under the influence of extension the surfaces of the fixed or displaced joint can be moved freely on one another, so that such movement is followed by a minimum degree of rapidly subsiding inflammation The apparatus, by means of which a considerable amount of extension is kept up upon the affected joint, is applied to the limb and the patient at once proceeds to lead an active life

The mode of treatment varies to some extent with the joint affected In many hip conditions it is necessary to employ forcible movement and extension before the apparatus is put on, whereas in disease of the knee the apparatus is applied at once to the deformed limb, extension being exerted gradually subsequently Any residual flexion of the knee that cannot be overcome by the use of the splint alone can be met by forcible straightening of the limb on the extension table

The knowledge of the usefulness of the combination of extension and movement has served me in good stead in recent years, and I have been able to restore the functions of many joints which would otherwise have been fixed, probably in a bad position, and materially interfering with the usefulness of the individual

In 1887 I read a paper before the Royal Medico Chirurgical Society entitled "An Undescribed Method by which the Superjacent Weight of the Body is Transmitted in a United or Ununited Fracture of the Neck of the Femur through an Acquired Ilio femoral Articulation, and the Bearing of the Principle on the Surgery of the Hip joint ' In that I demonstrated, in cases of shortening of the upper extremity of the femur resulting from fracture of the neck of the bone or from disease of the joint, the mechanical advantages afforded by the formation of a new articulation in front of the transverse axis of pelvic rotation, since in these circumstances compensation for the shortening did away with the lordosis and the superjacent weight of the trunk was transmitted through a secure joint which allowed of a considerable range of movement I applied this principle with great advantage to cases of tubercular and other diseases of the hip joint fixed in a position of much adduction and flexion in which the active disease had become quiescent or in which the femur had ankylosed to the innominate bone In the latter case the ankylosed bone was divided and its extremity rounded by means of a coarse file If the femur was not ankylosed the stump of the residual head and neck was treated in a similar manner The surface of bone immediately below the anterior inferior spinous process of the ilium was then freely exposed, when a cavity of a shape and size suitable to accommodate the rounded end of the femur was cut in its outer aspect by means of a gouge (See figure) A thick piece of silver wire was then passed through a drill hole, which traversed the neck and upper end of the shaft of the femur from without inwards The floor of the cavity in the ilium was then perforated by the drill and the end of the wire was passed through it The extremities of the wire were drawn together and fixed in such a manner as to retain the newly shaped surfaces of bone near to one another, care being taken not to approximate the surfaces too closely so that they would move freely on one another without friction Movement around the axis afforded by the silver wire was commenced as soon as the soft parts had united After the lapse of several weeks the wire was removed, when rotatory movements were instituted and the normal range of function was restored as far as the conditions would permit I found that the younger the subject at the time of operation the sooner was a new joint developed and the more perfect was the result I was surprised to find how rarely tuberculous infection sprang up in old diseased joints dealt with in this manner



This figure represents the outer surface of the innominate bone The dotted circle shows the position of the cavity cut to accommodate the end of the neck of the femur

My subsequent experience of the extension splint has convinced me that this freedom from recurrence was due chiefly to the fact that the articular surfaces were prevented to a great extent from exerting mutual pressure by the presence of the thick silver wire on which they were threaded for a considerable time, while the nutrition of the patient s joint benefited by the free movements that were employed to develop the new articulation I have recently seen some of the cases on which this operation was performed in 1896 and 1897 and found that the new joints were still functioning efficiently Several of these cases were described and illustrated in the *Clinical Journal* of Oct 20th, 1897

The chief obstacle that I experienced in these operations, and especially in other than young children, was the great pain on movement I attempted to overcome this by various forms of extension apparatus, but could not obtain one which was in any way thoroughly efficient If at that time I had been able to avail myself of the use of a thoroughly satisfactory extension apparatus—which did not exist at that time—I should have been able to enlarge the scope of my usefulness very materially and in many cases have simplified the surgical procedures

A NOTE ON THE CLINICAL DIAGNOSIS OF DIPHTHERIA AND OTHER EXUDATIONS IN THE THROAT.[1]

BY HARRY DRINKWATER, M.D. EDIN.,
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BY clinical diagnosis I mean immediate diagnosis, at the bedside of the patient, by ocular inspection of the fauces, before a bacteriological examination is made.

A very considerable percentage of cases certified as diphtheria and sent as such into the fever hospital of which I have been in charge for between three and four years have been cases of follicular tonsillitis, influenza, or simple catarrh. On the other hand, many cases have been admitted in a hopeless condition of toxæmia, or only just in time for life to be saved by tracheotomy, the disease having been treated for several days as "quinsy." This uncertainty as to the differentiation of diphtheria from the simpler infections of the fauces is widespread, and medical practitioners are often in doubt apart from a bacteriological examination, which may mean a delay of 24 or 48 hours, with possibly disastrous results.

The thesis which I advance is that if certain visible characteristics are carefully observed, and more especially the distribution of the disease patches in the fauces, this uncertainty should seldom occur. As a matter of fact, my naked-eye diagnosis has been confirmed in every case by subsequent bacteriological examination, with the single exception of Vincent's angina, which cannot always be distinguished from diphtheria by the eye alone. In from 10 to 20 per cent. of cases of true diphtheria an examination of a swab-film is negative, and the Klebs-Löffler bacillus is only detected after cultivation in an incubator. Very often the swab has to be sent away by post, and there is inevitable delay. It is, therefore, obvious that if a diagnosis can be made by ocular inspection alone such means of diagnosis must have an immense advantage over the bacteriological method, however desirable the latter plan may be for purposes of confirmation.

If my plan of diagnosis has been uniformly correct for a period of over three years, in a hospital serving a district with a population of about 80,000, one is driven to the conclusion that exceptions must be few and far between. The points to be relied upon in making the diagnosis are illustrated by the drawings here shown; they are all hospital cases admitted as diphtheria.

The first point to note is the distribution of the patches, and for this purpose the fauces may be considered as divisible into six areas, three on each side of the mid-line, as shown in Fig. 1, where A B is the mid-line and the figures 1, 2, 3 are placed in the tonsillar, the uvular, and the palatal areas respectively. Every area may show some deposit, and in *any one* area the deposit may consist of a single patch or of several patches. The tonsillar area is the one most frequently affected. Now the important thing to observe is whether the tonsillar area (or any other area) shows *one* patch or more than one. If two or more patches are present on one tonsil or in one tonsillar area the disease is neither diphtheria nor Vincent's angina; most frequently it is follicular tonsillitis or influenza. In diphtheria the patch in *any one* area is single, and the same is true of Vincent's angina; in follicular tonsillitis and in influenza there are multiple patches in the tonsillar area.

In diphtheria the patch shows certain well-marked characteristics—viz.: (1) It is raised above the level of the mucous membrane. (2) The edges of the deposit are sharply defined all round. (3) The colour varies greatly; it may be white and glistening, bluish, yellow, or spotted with black or red. It rarely has the "wet wash-leather" appearance described in the text-books.

In a given case of membranous deposit on the fauces, if it is raised above the level of the mucous membrane, has sharply defined edges, and is single in each affected area, there can be no doubt that the disease is either diphtheria or Vincent's angina, and this diagnosis is arrived at in a few seconds without delay in waiting for a bacteriological report.

It is necessary to remark that these features are characteristic of the disease in the period of growth; after resolution has begun and the membrane is being cast off a number of isolated islands may be seen in the tonsillar area; but, of course, the diagnosis should have been made before this stage is reached. In diphtheria or Vincent's angina there may be five or six patches, but in neither disease do we see (in the period of growth) more than one patch in any one of the six faucial areas; each area may have one patch, but not more than one. If, then, in a given case two or more patches are seen in the tonsillar area the disease is not diphtheria, and a bacteriological examination is not required except for confirmation of the naked-eye diagnosis. The term diphtheria is applied to those cases in which Klebs-Löffler or Hoffmann's bacilli are present. If these germs are not present the disease is regarded as other than diphtheria.

Descriptions of Illustrations.

FIG. 1.—The areas of the fauces: (1) tonsillar area, between anterior and posterior pillars of the fauces; (2) uvular area; (3) palatal area.

FIG. 2.—Diphtheria. Single sharply defined patch in each tonsillar area; tonsils swollen.

FIG. 3.—Diphtheria. One patch in each tonsillar area; shows elevation of patch above surface of mucous membrane.

FIG. 4.—Diphtheria. Single patch on each side.

FIG. 5.—Diphtheria. *Thick membrane extending into all six areas;* edges sharply defined.

FIG. 6.—Diphtheria. *Involving every area except right palatal.*

FIG. 7.—Hoffmann's diphtheria. Distinguishable from Klebs-Löffler diphtheria only by bacteriological examination.

FIG. 8.—Vincent's angina The distribution is like that of diphtheria. The deep depression ("penetrating ulcer") in the patch *on the left tonsil is characteristic of Vincent's angina.*

FIG. 9.—Vincent's angina The thinning of the lower part of each patch is characteristic of Vincent's angina. It is not seen in diphtheria.

FIG. 10.—Double infection of diphtheria and Vincent's angina.

FIG. 11.—Double infection of diphtheria and Vincent's angina.

FIG. 12.—Influenza. Distinguished from *diphtheria and Vincent's* angina by having more than one patch in the tonsillar area.

FIG. 13.—Influenza. Showing *two patches on right tonsil.*

FIG. 14.—Influenza. The two patches on the left tonsil at once *distinguish it from diphtheria.*

FIG. 15.—Follicular tonsillitis. Tonsils congested. Pus oozing out of several follicles. FIG. 16.—Scarlet fever. FIG. 17.—Rubella.

FIG. 18.—Secondary syphilis. Thin deposit. The case was one of diphtheria which showed this appearance three weeks after admission to hospital.

The appearance of Vincent's angina as seen in the throat is very similar to that of diphtheria, so similar, in fact, that in many cases it is quite impossible to differentiate the two diseases. Vincent's angina may be said to mimic diphtheria, just as syphilis and hysteria mimic other diseases. Occasionally, however, we come across a case of Vincent's angina which can be at once recognised as such, owing to certain special features, the most characteristic of which is a sharply defined penetrating ulcer about the middle of the patch with its long axis running vertically, the deposit sometimes scarcely extending beyond the margins of the ulcer. Another peculiar feature is the marked thinning of the lower portion of the patch, making the inferior limit ill-defined. If either of these features be present Vincent's angina may be safely diagnosed. There is sometimes considerable erosion of the uvula. Sometimes the deposit is softer and more creamy than in diphtheria, whilst in other instances it is extremely dense and tenacious.

In follicular tonsillitis there is marked swelling and congestion of the tonsils, and muco-pus can be seen oozing out of several follicles. The single patch characteristic of diphtheria and Vincent's angina is never seen. In influenza the patches are multiple in the tonsillar area, and very often without any appreciable swelling of the tonsils.

Should these points be generally confirmed the conclusion would follow that, from the point of view of practical medicine, the naked-eye diagnosis at the bedside of the patient is incalculably more important than the bacteriological diagnosis, and that if generally acted upon there will result a considerable saving of life.

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[1] Based upon a paper introducing a discussion at the Medical Society of London on Feb. 9th (see THE LANCET, Feb. 21st, p. 442).

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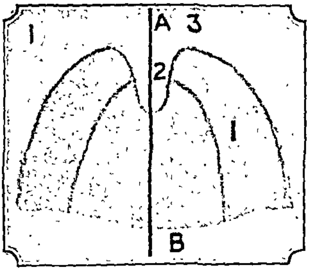

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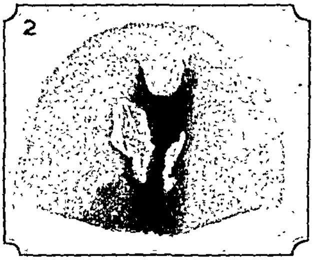

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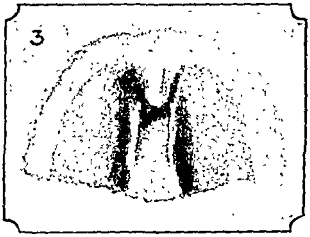

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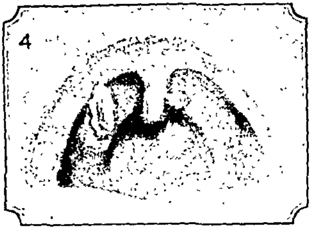

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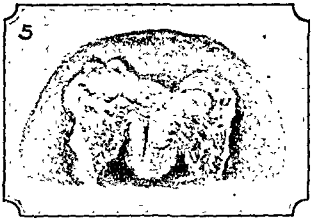

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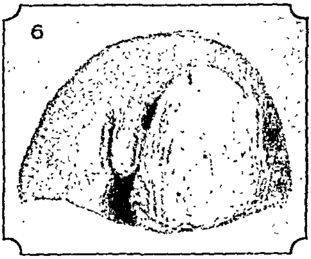

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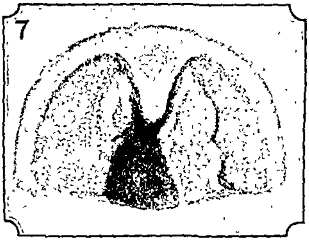

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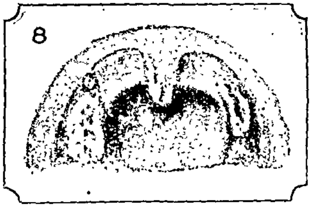

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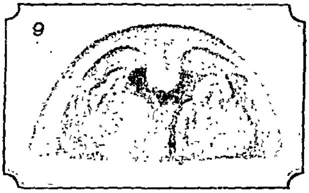

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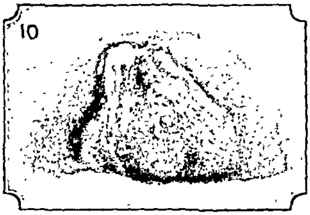

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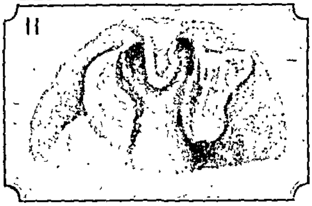

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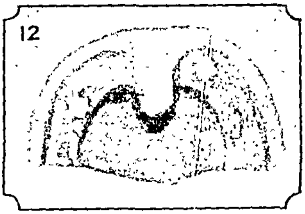

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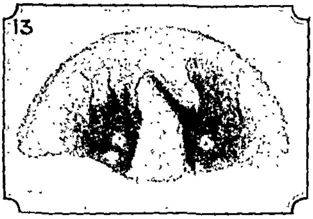

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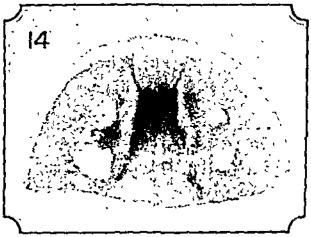

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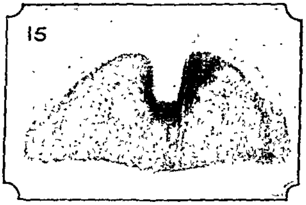

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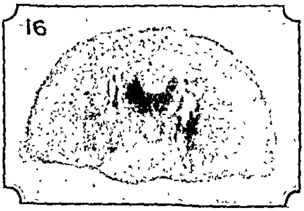

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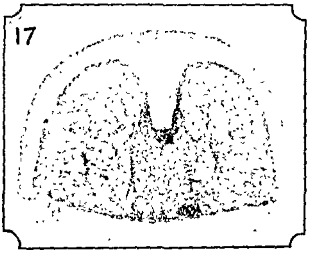

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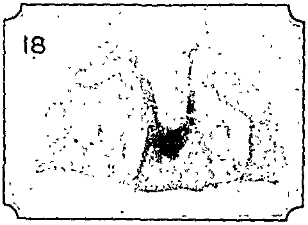
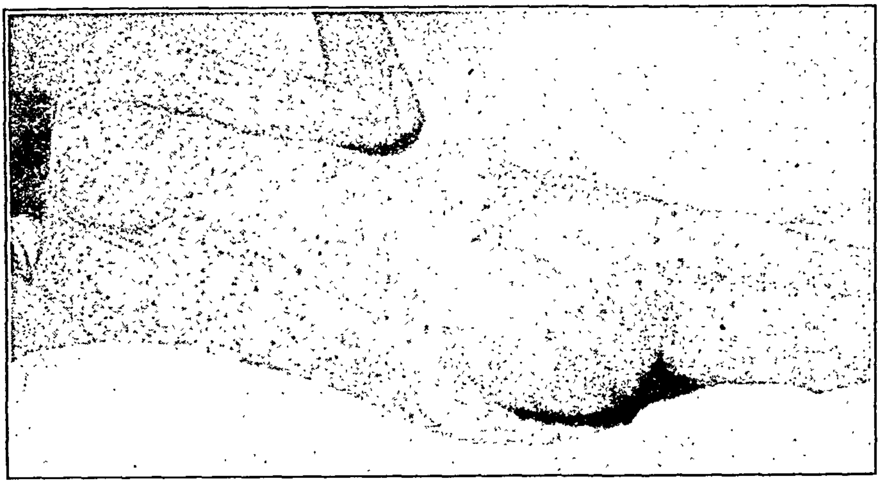


THREE CASES OF MODIFIED SMALL-POX.

BY WALTER ALLINGHAM, M.R.C.S., L.R.C.P. LOND.,

MEDICAL OFFICER OF HEALTH, ORSETT, ESSEX, RURAL DISTRICT COUNCIL.

THREE small-pox cases of unusual interest have recently occurred in this district. The following details may prove useful in the diagnosis of similar cases. All three followed the same course with varying severity in conformity with their vaccinal states, each exhibiting similar characteristics as regards rashes and distribution. In each case headache was followed in three days by a papular rash (on forehead and chest), rapidly becoming vesicular and gradually involving the whole trunk and extremities equally. Flexor surfaces were affected as much as extensor, with several spots in both axillæ; palms of hands, soles of feet, and soft palate quite free. The vesicles were discrete, soft, and flat; some were ovoid, not umbilicated, and collapsed on puncture. As no history of contact with small-pox could be obtained in the first case, the diagnosis of chicken-pox was made, but on the eighth day of the first rash a second rash made its appearance, unaccompanied by any constitutional disturbance except a slight headache in the mildest of the three cases. This secondary rash, which was petechial, deep, and somewhat shotty, affected those parts more especially involved in true small-pox—that is, the brow, wrists, extensor surfaces of forearms and legs, palms of hands, and soles of feet; in two cases vesicles were seen on the soft palate. By this time most of the first rash was becoming dry, but many vesicles still remained full of lymph and quite soft. The two rashes were quite distinct and could easily be differentiated.



An unusual case of modified small-pox (Case 2), showing profuseness of first rash on the back and secondary rash on forearm. The latter became thicker on the wrist and hand, which are not shown.

Details of Cases.

CASE 1.—Male, 69. Vaccinated in infancy. Headache and general malaise for three days, with some temperature; when first seen vesicular rash on forehead, chest, back, and extremities generally; successive crops appeared on following days, affecting both axillæ, but avoiding palms and soles; on the third and fourth days of rash temperature rose to 102° F. and patient was delirious. Next day temperature fell and patient felt practically well. During the following days fresh spots appeared, having all the characteristics of chicken-pox, until the eighth day, when a few petechial spots were first noticed on palms of hands. Next day soles of feet were similarly affected, and two small vesicles were seen on soft palate; papules appeared on face, trunk, and arms, some quite shotty. I then decided the case was small-pox, and ordered removal to M.A.B. hospital ten days after first rash appeared, since when I have lost sight of the case, but am informed that the patient made a good recovery.

CASE 2.—Male, 60, brother of the first case. Vaccinated in infancy; revaccinated on the day first case was removed to hospital. Onset, headache not severe four days after vaccination. Two days later a few papules appeared on forehead and chest; the next day forehead, whole trunk, arms, thighs, legs covered with vesicular rash, also axillæ, hands and feet free. Seven days after vaccination, which was successful, patient was moved to the local small-pox hospital. Fresh vesicles continued to appear daily until the whole body, except palms and soles, was involved, the spots being ½ to 1 inch apart. There was some swelling of the nose, where the spots were semi-confluent. Eight days after appearance of first rash two or three deep purple spots were noticed on terminal phalanx of each thumb, followed later in the day by a few on soles of feet. These were distinctly shotty and quite different in appearance from those seen in the first rash. Next day the new rash was well established, intermixed with the old, but affecting more especially the extremities and extensor surfaces.

The accompanying photograph, which I took 11 days after appearance of the first rash, shows how particularly the secondary rash had involved the forearm, and well illustrates the profuseness of the first rash on the back, which was only slightly affected by the second rash. No constitutional symptoms ushered in the second rash, and throughout the temperature never rose to 100° F. Subsequently some of the spots coalesced, to form large flat sloughs the size of a shilling; otherwise the patient was making a good recovery.

CASE 3.—Female, 61, wife of first patient. Vaccinated in infancy; revaccinated on the day her husband was removed to M.A.B. hospital. Onset, severe headache eight days after successful revaccination. Two days later a few papules on forehead and chest; numerous small vesicles on arm adjacent to vaccination groups. On the next day more vesicles appeared on chest, abdomen, axillæ, back and thighs, and arms—flat, soft and superficial, not umbilicated. The patient was then removed to local small-pox hospital. Small crops of vesicles continued to appear on successive days, but they were very scanty, showing no preference for the extremities. Two large groups of small vesicles like herpes occurred on chest and back; very few spots on the face, hands, and feet; beyond initial headache patient felt well and had no temperature. Nine days after first rash appeared a few petechial spots showed on soles of feet; patient had a return of slight headache for a few hours. Following this more spots of a deep nature became evident, intermixed with the other rash, but in this case neither rash became profuse. Subsequently seeds (dried-up contents of pocks) have been extracted from some of the pocks in all three cases, proving the secondary rash to be small-pox.

Remarks.

Reviewing these cases, which occurred without any history of exposure to small-pox, the diagnosis of chicken-pox on the first rash was, in my opinion, reasonable, and it was only after the first patient developed a secondary rash that I decided to isolate the subsequent cases at an early date. It might be wise to insist on isolation of chicken-pox for the first ten days.

AT the Royal Institution of Great Britain, the Friday evening discourse on June 4th will be delivered, at 9 o'clock, by Sir Ronald Ross, the subject being Science and Poetry.

THE NEED OF DENTISTS.—With regard to Professor Adami's call for 10,000 dentists, mentioned in THE LANCET of May 22nd (p. 1142), it is important to remember that there are only about 5000 registered dentists in the United Kingdom—a number little greater that in 1878, when the Dental Register was instituted—a number, moreover, quite insufficient to attend to the dental needs of the 5,750,000 school children alone, even if all dentists gave their whole time to school work. The number of dental students in Manchester University is now 130; nearly three-quarters of them are ex-Service men; there are 12 women students.

FULL-TIME TUBAL PREGNANCY

CÆSAREAN SALPINGECTOMY RECOVERY.

BY R ECCLES SMITH, O B E , M B , CH.B LEEDS,
F R C S EDIN ,
SURGEON TO THE SURGICAL HOSPITAL BARRY, GLAM

THE question of a viable child going to term in a Fallopian tube without rupture of the tube has been the subject of much discussion and diversity of opinion. Sir John Bland Sutton, after vast experience, refuses to acknowledge the possibility of such an occurrence So far, in the literature, I can find no case similar to the one I am recording, in which I believe complete rupture of the tube did not take place. I admit that incomplete rupture of one or more of the coats may have occurred in the earlier months, followed by sufficient reinforcement by adhesions and localised protective peritonitis (as shown by the repeated alarms) thwarting complete rupture, and allowing a viable child to go to full term until delivered by surgical interference

Dr. R P. Harris[1] collected 40 cases of removal of a living fœtus over seven months, with a mortality of 10 mothers and 13 infants Van Boll[2] records 46 maternal deaths out of 83 cases of operative treatment for pregnancy over seven months Sitner's[3] latest statistics show a 30 per cent mortality of the mother where the placenta was removed and the sac left, and 5 7 per cent where the whole or the greater part of the sac was removed. The fœtus in these cases did not apparently reach the full period.

The Case Described

Mrs P , aged 32 years, 3 para, nine years, eight years, and six years ago Children were born naturally and without difficulty Menses regular, and last seen April 10th, 1919, for five days On June 12th, presumably about the eighth week of pregnancy, she was suddenly seized with acute pain on the left side of the lower abdomen, with "cramp" in the left leg She was in bed for two days, and had what she thought was a copious menstruation for four days, resulting from an attempt at tubal rupture or abortion Some slight swelling of the left leg was noticed at this time Examination by her doctor showed an indefinite fullness in the left side of the pelvis, apparently not sufficient to diagnose a pelvic hæmatocele (small if present at all), but certainly suggestive of a pregnant tube Exactly seven days later another attack was recorded, similar to the above but of much less severity, with no external hæmorrhage and not necessitating rest in bed Every 14 to 21 days from this date up to term she had attacks of pain without hæmorrhage and insufficient to take her from her duties except for a few hours The patient went on with what she thought was a pregnancy ordinary in time but extraordinary in character In October and November she had frequency and incontinence of urine Associated with this was an offensive vaginal discharge A coli cystitis (cultured later) was present

On Dec 22nd I saw her in consultation with Dr W P Starforth of Barry She had been in labour for some 16 to 20 hours The pains were frequent and strong To observation and palpation the abdomen suggested a full time pregnancy, the fundus of the "uterus" being pushed over to the right side Vaginally the cervix was extremely high up almost out of reach There was an old tear and a marked erosion with endocervicitis producing an offensive discharge The cervix was only slightly softened and partly dilated but not in keeping with a cervix of labour Per rectum there was a large hard mass at the pelvic brim on the left side, corresponding to the head of the infant The uterus was not defined, but thought to be the enlarged sac felt in the abdomen

The diagnosis of obstructed labour was made, conjecture being that this was due either to a rigid cervix or to some parametric tumour I may say here that the earlier history was not fully gathered at the time of the examination, as the original medical attendant had left the case without recording the early symptoms, and the patient s disjointed story of an early threatened abortion was taken too much for granted Operative measures were advised

Operation —Median incision 8 inches long An apparently full time pregnant "uterus" was carefully packed off from the abdominal cavity During this process a strong band across the upper pole of the gestation sac thought to be an adhesion of the great omentum, was felt Incision into the "uterus" proved this sac to be abnormally thin walled The infant was rapidly evacuated, the head being in the pelvis The lack of the usual contraction of the "uterus," in spite of a prior injection of 1 c cm of pituitrin, gave rise to a suspicion of extra uterine gestation A normal placenta was stripped off from the upper and posterior walls of the gestation sac Careful exploration of the sac did not reveal any rupture Except at the placental site the walls were homogeneously smooth, and the infant was completely covered by the gestation sac There were no signs of a pelvic hæmatocele or of organised clot of any dimensions, so that if rupture had taken place it must have been incomplete or negligible The true pelvis was then explored A slightly enlarged normal uterus, right tube, and ovary were present The left tube for half an inch was normal, and then expanded into the gestation sac The sac, now rapidly filling with blood, was momentarily packed and reinspected The band mentioned turned out to be the pelvic colon stretched over the sac, the layers of the broad ligament having been pushed up before the increasing tube The peritoneum was quickly incised and stripped off the sac It was not possible to free the pelvic portion of the sac completely The left tube was then ligated at its attachment to the uterus and the right tube ligated and divided for sterilisation The main part of the sac with the portion containing the placental site was clamped off and removed A few deep mattress sutures to approximate as far as possible the walls of the remainder and a running suture to bring together the edges of the sac and arrest hæmorrhage were inserted Hæmostasis completed, the peritoneum was then closed Rapid abdominal toilet and closure of the abdomen without a drain completed the operation in under an hour

The child was fully formed, well nourished, of good colour, and weighed 5¾ lb The head was markedly flattened over the left parieto-occipital region The right side of the neck was completely depressed as though a ball had been pressed into it The mandible on the right side was almost semilunar with the concavity upwards These temporary deformities are rapidly being rectified by nature.

Except for the passage of a clot per vaginam (no decidua) and a slight chest complication the mother made an uninterrupted recovery, and went home in a fortnight About 14 days later she had some further bladder disturbance, which rapidly cleared up with urinary antiseptics Examination reveals nothing abnormal in the left side of the pelvis except a little thickening

Report on the sac by Dr KNYVETT GORDON (The portion was taken from the edge of the sac)

"This specimen is a portion of the Fallopian tube much stretched and thinned, and with the epithelium almost obliterated by pressure Between the muscle fibres are masses of fibrin and leucocytes No decidual cells or chorionic villi are present "

I am indebted to Dr Starforth for his assistance at this case, to Dr Lawrence Pick for a very difficult anæsthetic, and to Dr Gordon for his careful report on the section

For the kindly interest, advice, and examination of the specimen I am deeply grateful to Sir John Bland Sutton, on whose dictum that full time tubal pregnancy without rupture is not possible this case appears to me to throw some doubt

References —1 Kelly s Operative Gynæc vol ii 2 Centralbl f Gyn No 15 1899 3 Amer Journ Obstet No 6 1908

LIMITATION OF PANEL PATIENTS IN ABERDEEN.—On May 17th, at a special meeting of the Aberdeen Burgh Insurance Committee, it was agreed, among other things, that the total number of patients on a doctor's panel must not exceed 2500

SOCIETY FOR RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN —The annual general meeting of this society was held on May 19th Sir Alfred Pearce Gould in the chair Sir Malcolm Morris and Dr J Needham were elected Vice Presidents and eight new directors were also elected to fill the vacancies in the Court The society consists at the present time of one honorary, 160 life, and 135 ordinary members making a total of 296, and from an investigation of the figures for the past 25 years it appears that the total number of members remains practically stationary, the expenses have not increased, and they have been met by the subscriptions The invested capital has increased from £95 700 in 1895 to £144,250 in 1920 this increase having been due mainly to the large legacy received from the late Mr Brickwell The annual grants during the same period have increased from £3280 10s 5d to £4937 19s 10d. Further particulars of the society may be obtained on application to the Secretary at the offices of the Society, 11, Chandos street, Cavendish square, W 1

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

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BRONCHO-PULMONARY SPIROCHÆTOSIS (CASTELLANI) SIMULATING PULMONARY TUBERCULOSIS.

BY C. LESLIE BROWNE, L.R.C.P., L.R.C.S.,
ASSISTANT MEDICAL SUPERINTENDENT, CLARE HALL SANATORIUM.

CONSIDERING the importance of the question of pulmonary tuberculosis at the present time, the following notes of two cases occurring in Clare Hall Sanatorium may be of interest.

CASE 1.—E. B., aged 47 years, male, admitted on May 5th, 1919. Born in London and lived there all his life. Health has always been good till nine years previous to admission, when he had a severe attack of bronchitis. This left him with a cough, which continued slight till October, 1918, when a second attack of bronchitis ensued. After recovery cough still continued and became very persistent. About the middle of February he had an attack of hæmoptysis, quantity about an ounce. Between the middle of February and the end of April he had five similar attacks, and on each occasion the amount of blood was about an ounce. No family history of T.B. traceable.

The general condition of patient on admission was fairly good and temperature was normal.

Lungs: Signs of bronchitis present.

Mouth: Some carious teeth present, with spongy gums, bleeding easily on pressure.

Pharynx: Injected, but no definite soreness present. Patient did not feel his throat sore.

Sputum: Frequent and careful examinations were made. No T.B. were found, but spirochætes were present in enormous numbers. Sputum was almost purulent in character, with an offensive odour.

As secretion taken from crypts between teeth and gums showed heavy infection with spirochætes great care was taken in having the mouth thoroughly washed with antiseptic lotion just before obtaining sputum. This made no difference in the enormous numbers of spirochætes.

Morphology of spirochætes.—Actively motile; length from 7 to 29 μ, with tapering ends; spirals varied from 2 to 9, and quite irregular. An occasional one with regular spirals was found. On staining, carbol gentian violet gave the best and clearest definition. Fontana's method also gave a good picture. The Romanowski stains were not quite so successful. The spirochætes were Gram-negative; Benian's stain presents an excellent picture.

Treatment.—Arrhenal (disodium methylarsenate) was given by mouth in ½-gr. doses, twice daily for some weeks. There was a slight diminution in the numbers of spirochætes at the end of this period and an improvement in the general condition of the patient. Cough was less persistent. Kharsivan in doses of 0·1 g. was next given intramuscularly till 1·2 g. had been administered. Under this treatment the number of spirochætes diminished rapidly, cough became considerably less. Patient slept much better and his general condition was very satisfactory. On discharge spirochætes were still present, but not many. A mouthwash was used throughout the course of treatment and the teeth were attended to by a dentist. This patient had no recurrence of hæmoptysis while under treatment here.

CASE 2.—D. L., aged 28 years, female, admitted on July 21st, 1919. Trouble commenced with hæmoptysis in March, 1915. Since then it has been frequent, sometimes daily for seven or eight days consecutively, and she has been in the following institutions: Chelsea Hospital, March to November, 1915; Clare Hall Sanatorium, November, 1915, to January, 1917; Neasden Isolation Hospital (T.B. ward), January to June, 1917; Eversfield Chest Hospital, St. Leonards, August, 1917, to June, 1918; Middlesex Hospital, November, 1918, to March, 1919.

Patient was born in England, and has always lived here, except for three years—1911 to 1914—spent in Canada. She states that in November, 1912, she was operated on for gastric ulcer, and had a second operation for the same purpose a month later. In the winter of 1913 she had an operation for appendicitis. On her return to England she developed intestinal obstruction, and was operated on at St. Mary's Hospital, Paddington. Later in the winter of 1914–15 she had pneumonia and pleurisy, which left her with a cough. Her first attack of hæmoptysis followed shortly after.

On the first day of admission to the sanatorium she had a small hæmoptysis—about an ounce at most. During her stay here she has had frequent hæmoptyses, varying from 2 drachms to 4 ounces, and sometimes more. On five or six days in succession she has produced coloured sputum. Routine examination of sputum showed enormous numbers of spirochætes. Examination of mouth showed some decayed teeth with spongy gums, which bled easily on pressure. Examination of secretion from crypts between gums and teeth also showed enormous numbers of spirochætes. The same precaution was taken as in Case 1 to prevent sputum examined being contaminated from the mouth. Frequent and careful examination of sputum showed no T.B. Physical signs in the lungs were those of bronchitis, and were practically the same as when here in 1916. Abdomen showed operation scars. Stomach dilated; colon dilated. Constipation, with passage of large amount of mucus. There was much pain before and after motion. The character of hæmorrhagic sputum was a peculiar pink mixture, as described by Violle, with minute air-bubbles intimately mixed. The amount of blood was always considerably less than it appeared to be, there being quite a large proportion of watery sanguineous fluid with the thicker portions floating on the surface. The microscopic characters of the spirochæte were similar to those mentioned in Case 1.

Treatment.—At first this was directed to the alimentary tract and then arrhenal was given, but at the end of three weeks severe gastro-intestinal irritation was set up and it had to be discontinued. This soon improved and general treatment was given. Patient refused treatment by kharsivan. In spite of unsatisfactory treatment, the general condition improved and the spirochætes diminished considerably in numbers at the time of discharge. She was still producing colour expectoration when she left.

Remarks.

As far as I am aware, no case such as those described has been published as having occurred in England. Castellani first observed this condition in Ceylon in 1905, and his observations were confirmed by others in tropical parts. Later, in 1915, some cases were seen by Galli Valerio in Switzerland, Lurie in Serbia, and Castellani in the Balearic-Adriatic zone. In 1916 some cases were found in France by Violle, and in 1917–18 a few cases were observed by Rubière and Gautier in France among French and Indo-Chinese. Violle, in THE LANCET of Dec. 7th, 1918, remarks, "except in one single case, none of my patients had any mouth lesions of spirochætal origin," and Rubière and Gautier, writing in the *Journal of the Société de Biologie de Paris*, remark on the "absence of pharyngeal or dental lesions." In both the above cases the dental lesions were marked and, as noted, spirochætes were present in enormous numbers in the exudate. In other respects these two cases appear to agree with the description given by the writers mentioned. The physical signs in the lungs were those of bronchitis, the body was fairly well nourished, and the temperature normal. D. L. (Case 2) sometimes had a rise of temperature for a few days, but this was apparently due to other conditions. It will be noted that neither of these cases had any connexion with Eastern parts or peoples, and E. B. (Case 1) had never been out of England.

There is a proportion of cases in all sanatoriums with negative sputum, and a routine examination of such negatives might give a satisfactory explanation of some of them.

A CASE OF
HYDATIDIFORM MOLE IN A MULTIPARA AGED 51.

BY H. H. GELLERT, M.B., CH.B. EDIN.,
LATE SENIOR RESIDENT, METROPOLITAN HOSPITAL, E.

Bona fide cases of pregnancy occurring after the age of 50 years are possibly sufficiently scarce to merit their publication from the point of view of interest as well as of statistics.

The patient, a multipara, aged 51 years 11 months, was admitted to the Metropolitan Hospital on Feb. 9th, 1920, complaining of continuous hæmorrhage per vaginam, persistent vomiting of three weeks' duration, and increasing weakness. A mass occupying the pelvic cavity and palpable through the lower abdominal wall suggested a diagnosis of fibroid tumour of the uterus, and the patient was admitted with a view to having hysterectomy performed.

Previous history—Married 27 years, eight children, all normal confinements, youngest child 7 years old, no miscarriages Had never been robust, and was addicted to headaches anorexia, and slight dyspnœa Catamenia perfectly regular up to November, 1919, when she had her last normal period, after which she saw nothing till Jan 20th, 1920 From that date she started to lose and continued for a week This she imagined to be another period About this time she began to feel ill and started to vomit The hæmorrhage commenced again after a week's cessation and had continued ever since, increasing in amount, and at times slightly offensive She rapidly became weaker, the vomiting was persistent, occurring at all times of the day or night, and she was unable to keep food down at all She had lost weight Since Jan 20th she had noticed some tenderness over the lower part of her abdomen, especially on the right side, vertigo and a dull ache in the lower part of the back were also present No increase in the size of the abdomen or breasts had been noticed by the patient There was no history of constipation, retention, frequency, or pain on micturition, and no family history of syphilis

Present condition—On examination the following points were noted A tired, ill looking woman, anxious appearance, slightly jaundiced and anæmic Temperature 99 4° F, pulse 104 Tongue coated, breasts small and flabby, no secretion evident Abdomen showed no marked distension On palpation a smooth, globular lump slightly tender, rising just out of the brim of the pelvis, could be felt through the lower abdominal wall, and was slightly inclined to the right side of the middle line No uterine souffle heard Vaginal examination No discolouration of vulva, a mass was felt in both fornices, filling up the pelvic cavity, and continuous with the tumour palpable through the abdominal wall, firm, elastic, and definite in outline No softening of the cervix could be detected The urine was acid and deposited mucus No albumin or other abnormal constituents were present

During the three days the patient was under observation prior to operation the temperature remained at 99 4° F, and she continued to lose blood No vomiting actually took place, but there was nausea and retching on occasions No renal or pulmonary condition was found to account for the toxic appearance of the patient This debilitated condition gave rise to a momentary doubt as to the wisdom of submitting her to operation at once, but in view of the fact that the metrorrhagia was decidedly increasing in amount it was considered advisable to open the abdomen

Operation—After a preliminary catheterisation and plugging of vagina the abdomen was opened in the middle line and an enlarged uterus the size of a four months' pregnancy, was seen rising above the brim of the pelvic cavity, it was tense, elastic, regular in outline, and showed all the characteristics of early pregnancy After incision of the fundus the uterine cavity was explored with the finger The contents were found to be an hydatidiform mole, consisting of the typical chorionic villi in the form of gelatinous cysts The mole was loosened by "curetting" with the finger and the whole cavity systematically cleared No serious hæmorrhage was encountered The uterine incision was sutured and invaginated and the abdomen closed in layers Subsequently ergot was given hypodermically and the hæmorrhage per vaginam gradually ceased The patient's recovery has been uninterrupted

The failure to recognise the possibility of pregnancy, in spite of a somewhat suggestive occurrence of a short period of amenorrhœa, may in view of the age of the patient be considered a permissible lapse in the framing of a diagnosis

I am indebted to Mr Clifford White, under whose care the case was admitted, for permission to publish the details

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HEALTH CERTIFICATES BEFORE MARRIAGE —Our Vienna correspondent writes that the Austrian Board of Health intends to follow the example of several other States —for example, the United States and Bohemia—and attempt to make marriage more safe by requiring from both intending parties a certificate of health from a competent medical man The necessity for such a certificate is illustrated by the fact that the health of the Austrian population is much worse than ever before Professor Oppenheim, the leading specialist on syphilis and dermatology, states that 72 per cent of all prostitutes are now diseased, as against only 9 per cent before the war This increase of disease endangers the individual, and causes widespread sterility of marriages or illness of the offspring, acting most harmfully on the population In the Act of Parliament by which this health certificate is to be made legal provision will be made also to favour large families by taxation allowances to couples with more than two children, the advantages increasing with the number of children

Medical Societies.

ROYAL SOCIETY OF MEDICINE

SECTION OF OTOLOGY.

EXHIBITION OF CASES AND SPECIMENS

A MEETING of this section of the Royal Society of Medicine was held on May 21st, under the presidency of Mr. HERBERT TILLEY

Rapid Recovery from Acute Mastoid Suppuration.

The PRESIDENT showed a woman, aged 42, who was found to have the right antrum full of pus Owing to subacute inflammation in the first molar, that tooth was removed, when pus issued from the socket Despite daily irrigation of the antrum the discharge continued, and the right middle ear became inflamed, and the drum membrane perforated. During the next ten days the pain settled in the mastoid and parietal region. He opened the right mastoid antrum and cells, which were infiltrated with pus The parts were well cleansed, smeared with B I P, and the skin wound sutured in its whole extent Immediate union took place, and improvement was continuous She had left the home in a fortnight Her hearing was so good that she could hear a colloquial whisper at 8 feet, and the ticking of a watch at 8 inches

Mr. E M WOODMAN congratulated the President on his result, and told of a very satisfactory experience he had had with the same treatment since Mr. Tilley brought it forward a year ago It seemed that the more dirty the cases the better they did But he would not advise this precise treatment in cases in which there was infection of the lateral sinus, with rigors and high temperature —Sir CHARLES BALLANCE said he did not think there could be a better or quicker result in a bad case of acute mastoid disease To get healing in a fortnight in such a case was a triumph of surgery.

Tumours of the Eighth Nerve.

Mr. J S FRASER (Edinburgh) presented a careful statement on the ætiology and pathology of these tumours, with a dissertation on their microscopical appearances, clinical aspect, diagnosis, and the responses of the patients to hearing tests This was supplemented by a series of beautiful photomicrographs and notes of four typical cases These tumours may originate in the dura mater, the pia arachnoid, the peri- or endo neurium, or the sheath of Schwann The tumour might only affect the vestibular nerve, or occur only in the modiolus of the cochlea The tumour consists of fibres and nuclei, the former running in all directions, and hæmorrhages are often noted. Sometimes bundles of well preserved nerve fibres are seen running through the tumour In his four cases there was marked involvement of the labyrinth, and in one of them the perilymph space was crowded with fibrin, this, apparently coinciding with the "choked disc" in eye conditions, he termed, after a foreign observer, "choked labyrinth" The usual age incidence was 30 to 50 years With regard to symptoms, the first were nearly always auditory and vestibular—tinnitus, giddiness, and deafness, next headache, increased on stooping, unsteady gait, with tendency to fall to the side of the lesion. There were also diminution or loss of corneal reflexes, diplopia, and slight facial weakness, and later, difficulty in swallowing, cerebellar seizures, convulsions and loss of consciousness, anosmia, loss of memory, &c Unless these tumours could be diagnosed much earlier than at present it was almost useless to operate Radiograms of the two ears had not been helpful Nerve deafness with loss of the lower tones, in the absence of middle-ear disease, was held by Rhese to indicate the probability of acoustic tumour.

The PRESIDENT and Sir CHARLES BALLANCE spoke highly of the value of Mr Fraser's researches as shown in his exposition of this series of cases.—Mr. W. M. MOLLISON referred to one case of acoustic tumour upon which he had operated. The patient had the symptoms which Mr. Fraser described, and she was completely deaf. The tumour he removed from the eighth nerve was the size of a hazel-nut, and she made an excellent recovery. She died, however, of mental symptoms three months later.—Mr. **SYDNEY SCOTT** also expressed his appreciation of Mr. Fraser's work. The "choked labyrinth" which the latter spoke of was not present in all cases. There were many intracranial tumours which were not necessarily auditory nerve tumours, and it was only when the auditory nerve became defunct that one could be certain a case was one of unilateral auditory nerve tumour. Patients suspected of having the latter condition should be kept under observation by their medical attendant; it would be wrong to tell them that nothing could be done for them. When the patient was very tolerant of the passage of the Eustachian catheter, he suspected fifth nerve anæsthesia. He agreed as to the significance of loss of lower-tone hearing in the diagnosis of acoustic tumour. He had seen about 30 of these cases.—Dr. **JOBSON HORNE** referred to a case in 1898, in a woman, aged 54, who, four years later, died insane. If these tumours were congenital, he asked why they took so long to develop sufficiently to cause symptoms.—Mr. E. D. **DAVIS** thought these cases must be rare; in 12 years' ear work he had seen only two possible cases of the condition. Unilateral nerve-deafness caused one to think of the likelihood of the case being one of acoustic tumour.

Atresia of Auditory Meatus.

Mr. H. BEDFORD **RUSSELL** showed a man, aged 24, the subject of atresia of the left external auditory meatus. There had never been any discharge from this ear, and the hearing was remarkably good, while there was very little loss of bone conduction. He proposed to remove the diaphragm and to skin graft.—The **PRESIDENT** referred to a bilateral case of the same kind which he had five years ago, in a stout woman whose condition dated from scarlet fever which she had as a child. She refused operation, and hearing was improved and the tinnitus relieved by catheter inflation.—Mr. T. B. **LAYTON**, Mr. **SCOTT**, Mr. **MOLLISON**, and Mr. **LAWSON WHALE** also discussed the case.

Destruction of Ear-drum by Hot Liquid.

Mr. L. **COLLEDGE** showed a patient who, four months ago, upset a cup of hot tea over her right ear. Two months later there was much discharge from and swelling of the meatus. Antiseptic treatment led to improvement, but left a perforation, including almost the whole of the membrana tensa. There was complaint of much tinnitus on that side, which bromide scarcely relieved.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE.

ÆTIOLOGY OF PELLAGRA.

AT a meeting of this society held at 11, Chandos-street, London, W., on May 14th, with Professor W. J. **SIMPSON**, the President, in the chair, Dr. E. J. **WOOD** read a paper on the Ætiology of Pellagra from the Standpoint of a Deficiency Disease. Considerable attention has been directed to this important subject in recent issues of THE LANCET by papers from Dr. A. D. Bigland and Dr. J. I. Enright, giving their experiences of the disease among Ottoman and German prisoners in Egypt, and challenging the view that a food deficiency is the sole cause; by a leading article summarising the conflicting opinions and theories as to its origin, and by a digest of the valuable report of the Committee of Inquiry on Pellagra in Egypt in 1918. It is probable that the findings contained in this report attain as near an approach to the correct solution of the much-vexed problem of the ætiology of pellagra as is at present possible.

With these results Dr. Wood found himself in close accord, and the support given by him is of considerable value, based as it is on a close original study of the disease existing in the State of North Carolina, U.S.A., and viewed from the aspect presented to an American mind. His observations are drawn from a part of the world widely remote from that in which recent British inquiries have been pursued, and presenting entirely different conditions of living and general hygiene. It is a striking fact that the first reference to the occurrence of pellagra in America is as recent as 1907. Dr. Wood's first cases were seen in 1905, and despite careful inquiry of older physicians he could obtain no evidence of its existence prior to that date. He further remarked the noteworthy fact that between the years 1905 and 1909 the disease assumed a malignant and fulminating type in North Carolina suggestive of its first invasion of a virgin soil, comparable with the devastating effect of the original introduction of measles among the Fijians. Since this period pellagra had assumed its more chronic form as found in the eastern hemisphere.

Valuable Results by other Workers.

Dr. Wood reviewed the recent valuable work done by W. H. Wilson in Cairo, of P. B. Boyd and his co-workers in Egypt, from the standpoint of a food-deficiency disease, and the conclusions drawn by them as to the dangerous influence of a fall in the biological value of the protein of the diet in the production of pellagra, as well as the important part played by diarrhœal disease in disturbing the protein balance. K. Thomas had shown that in maintaining nitrogenous equilibrium various substances differed widely; the biological value of vegetable protein, especially that derived from maize, was found to be less than that of milk or meat protein in a ratio of about one to three. This inferiority of the maize proteins was regarded as explicable by the large amount of zein, which is devoid of both tryptophane and lysine—two amino-acids essential for animal nutrition.

Dr. Wood fully endorsed the important conclusions of Joseph Goldberger as the result of observations based on (1) the dietetic origin of the disease; (2) its dependence on some undetermined error in diet, with a disproportionately high vegetable and a disproportionately low protein component derived from animal or leguminous sources; (3) the absence of pellagra among those consuming a mixed, well-balanced, and suitably varied diet. Attention was drawn to the atypical distribution of the skin lesions in Goldberger's cases and to the criticism of the correctness of diagnosis, which was refuted by the definite evidence that no part of the skin surface was exempt from invasion, even the scrotum, vulva, the back of the knees, and elbows, as shown by some of Dr. Wood's own pellagrous patients. Mention was made of the supposed influence of bacterial infection through the agency of imperfect sewage disposal, regarded as an ætiological factor by the Thompson-McFadden Commission, McCullum, and others. The infective origin of the disease had at one time met with Dr. Wood's support until it was disproved by the results of the heroic experiments of Goldberger and his volunteers, who exposed themselves to infection by consuming the fæces, urine, and desquamations of pellagrins, without anything suggestive of the disease appearing. In spite of this evidence against infection, the possibility of an infectious element playing perhaps a secondary, but not less essential, part could not be excluded.

Distribution of Pellagra in North Carolina.

Interesting facts as to the distribution of pellagra in North Carolina were introduced by means of a map of the State, and it was pointed out that the disease was chiefly confined to the foothills of the high mountains bounding the western frontier, and that, as a rule, its incidence was much less along the Atlantic seaboard, whilst in the mountains themselves its occurrence was very rare. Its distribution at one time suggested the influence of some insect pest, but this had not been demonstrated. A direct relationship between lines of travel and the topography of the disease might also have been viewed as evidence of the spread of infection. The food factor, however, eventually afforded a surer guide in tracing the probable source of the disease, one evidently independent of the vitality, mode of living, or hygienic conditions which might prevail among the inhabitants, either of the mountains, foothills, or seaboard.

The dwellers in the mountains were described as being the most degraded type of Anglo-Saxon known, lowered by inbreeding for the past three centuries, and often living in most insanitary and overcrowded huts, on a diet far from ideal. Yet the mountaineer did not suffer from the disease. His food consisted chiefly of maize ground in toto at the local water mill and consumed before rancid decomposition of the germ could occur. On the other hand, the inhabitants of the foothills—workers in the local cotton mills—availed themselves of whatever was provided by the local merchant in the form of commercial maize, meal, and patent wheat-flour, and adopted whatever means would curtail and facilitate the cooking process. In consequence their food was composed of wheat flour without cortex maize meal milled without bran or germ, and a variety of chemical rising agents It was among the consumers of this diet that pellagra prevailed Dr Wood described this circumstantial association very concisely in the following words "It was interesting to trace the outbreak of pellagra in a village, timing its appearance with the abandonment of the old grist mill to which each farmer carried his small portion of cereal for primitive grinding There seemed to be a striking coincidence of the disease with the adoption of modern errors in milling and cooking"

Effect of the Milling Process on Maize

It was in consequence of Goldberger's influence and work that Dr Wood undertook to view pellagra from the standpoint of beri beri as a deficiency disease He was at once attracted by the report of P A Nightingale, published in 1912, on the occurrence of what there could be no doubt was pellagra among prisoners in a gaol in Rhodesia, attributable to the replacing of the normal diet of hand ground maize (ropako) by commercial "mealie meal" It was realised that this change was the responsible cause of the outbreak and, as soon as a return to "ropako" was made, the beneficial result was "immediate and magical"

Impressed by this report of Nightingale's, Dr Wood set out to learn to what extent maize suffered in the milling process He found that in the modern steam milling the grain was degerminated—i e, deprived of the germ, which was later ground separately, and with the bran sold as cattle food, having a great reputation as a milk maker The reason given for the modern plan of milling was that if the grain was milled without separating and removing the fat containing germ, the resulting product readily became rancid, for the germ of maize, being quite soft and poorly protected was the first to suffer if deterioration occurred Dr Wood made allusion to the belief of Lombroso that pellagra was due to a toxicity arising from the destructive action of various moulds on the essential portion of the grain, and expressed the opinion that if Lombroso had substituted the word deficiency for toxicity he would have been in close accord with many modern views

Pellagra Considered from the Same Standpoint as Beri beri

Dr Wood, in regarding pellagra from the ætiological standpoint of beri beri, recalled the work done in the Philippines, which showed that phosphoric acid (P_2O_5) was a reliable indicator of antineuritic substance in the experiments with polished rice and beri beri With this in mind he found that the commercial maize germ product contained 1 15 per cent of P_2O_5, and specially milled germ often as much as 2 per cent Per contra maize milled in Ohio contained only 0 29, and when ground in toto with no removal of germ, the grain yielded 0 78 per cent P_2O_5, further, bearing out the occurrence of the antineuritic substance in the cortical portion of the grain, their analyses showed that bran portions of wheat contained 0 98 per cent of P_2O_5, while average wheat yielded only 0 14 per cent

It was noted that the bran and germ portion richest in P_2O_5 and antineuritic substance are those rejected in the modern milling process and converted into cattle food Experiments similar to those undertaken with polished rice, but with the substitution of degerminated corn, were made on pigeons and resulted in the production of droopiness, loss of feathers, and a red legged condition, somewhat analogous to the polyneuritis gallinarum caused by polished rice This condition was relieved by administration of good maize, also by the alcoholic extract of the germ of maize, and in almost as striking a manner, by means of fresh cows' milk

From his experiments Dr Wood was led to suspect that the deficiency was one of water soluble B rather than of fat soluble A Applying this to the treatment of pellagrins, he considered that the deficiency could be more readily remedied by giving milk, fresh vegetables, and meat, by the consumption of the whole cereal without removal of the germ, also by avoiding the use of bicarbonate of soda as a rising agent, it having been found that the balance between acid and alkali in many baking powders was one very crudely struck

The question was not so much of the particular cereal at fault, as of the portion removed in the process of milling, and applied equally to wheat as to maize and although nutritional errors—a too low protein level or a too low biologic protein—without doubt played a large part in the ætiology of pellagra yet Dr Wood could not exclude the possible influence of an infectious element in playing a secondary but not less important role In the light of the observations of Enright Jobling the Thompson McFadden Pellagra Commission, McCullum and Sambon, he considered that the problem of pellagra could not yet be regarded as solved

Discussion

The PRESIDENT welcomed Dr Wood's valuable contribution to the study of pellagra He drew attention to the possibility of a dual ætiology from an infective source as well as a nutritional deficiency, and compared the instances of tuberculosis and leprosy, in which dietetic deficiency or error may be associated with a microbic cause

Dr P H. MANSON BAHR gave support to the views of Enright and Bigland He claimed that too great stress had been laid on the food deficiency theory as the main cause of the disease, and held that the theory of infectious origin was effectually disproved Food deficiency, he maintained, did not explain the occurrence of the 65 cases of pellagra among 70,000 German prisoners in Palestine and Egypt who had suffered no previous food shortage, many of them in good physical condition, not afflicted with dysentery or malaria He asked why, if pellagra was due to a food deficiency, there had been no cases in Austria, where tuberculosis and rickets were so rife as the result of food shortage. He suggested as a possible explanation of the occurrence of pellagra in Egypt, especially among well fed German prisoners, the action of a toxin peculiar to the endemic areas in Egypt affecting the endocrine glands, and particularly the suprarenals, which, together with the sympathetic system, bore the brunt of the disease In making this suggestion he drew attention to the similarity of pellagra and Addison's disease, as well as to the resemblance between the intestinal lesions of sprue and pellagra

Colonel S P JAMES sought explanation of the seasonal variation of pellagra if the latter were due to diet deficiency, on the ground that the diet remained the same, irrespective of the season, in pellagrins He pointed to the possible influence of sunshine, in that there existed a close agreement between the maximum of sunshine and the greatest incidence of pellagra. The highest peak of the charted hours of sunshine was found invariably to be a month in advance of the highest peak of pellagra cases, and similarly the secondary peaks of the two were found to agree to a corresponding extent If a second element existed in the causation of pellagra he seriously questioned its being an infective agent.

Dr H S STANNUS, with reference to seasonal influence, regarded the association of maximum sunshine and pellagra only to hold good in so far as the skin lesions were concerned, and that the influence of sunshine had no bearing on other aspects of the disease He referred to his experiences in Central Africa and mentioned that, though some food deficiency was a factor in the production of the disease, among gaol prisoners there were certain who suffered from pellagra without having eaten maize, yet others who ate maize remained free from the disease

Lieutenant Colonel P S LELEAN, R A M C, supported food deficiency as the main cause He referred to the conditions prevailing among Turkish prisoners from Gallipoli and Syria, and the absence of any source of infection in the towns of Syria, where the disease was unknown to Syrian civilian doctors Among a batch of 400 prisoners who had experienced considerable food shortage there had been 279 cases of pellagra, which subsequently, under the influence of improved conditions in the prison camp, had dropped to 27 Similarly, in the Armenian refugees' camp, as the result of short rations, pellagra occurred, but later disappeared on the improvement of the food supply. The striking contrast presented by the adjacent prison camps at Maadi, the one with 6000 Turks and many cases of pellagra, the other with 2000 German prisoners in good physical condition and presenting no cases of pellagra, could only be accounted for by a difference of diet The occurrence at a subsequent date of 65 cases out of a total of 70,000 German prisoners, he maintained, could be explained on the score of a food deficiency, by the effect of heavy work when on a light diet calculated as sufficient to meet the ordinary demands of life, also by the failure of extra supplies, which had at first been met through charitable agencies on behalf of prisoners, but had subsequently not been forthcoming in the later period of the war. The deviation of the biological protein of the light diet in response to the increased demands of heavy work, even if digestion and assimilation were correctly balanced, would, he considered, create a deficiency sufficient to account for the occurrence of pellagra.

Dr. W. H. Willcox and Dr. T. P. Beddoes also took part in the discussion, the latter drawing attention to the variation of the skin lesions as the result of exposure to heat, the most exposed areas—e.g., the back of the hands, the front of the knees, and instep—suffering most often. He also referred to the seasonal variation of the disease in its possible influence on the production of skin and digestive lesions, and, in advanced cases, of mental disturbances.

Dr. Wood, in his reply, stated that he viewed the whole problem of the ætiology of pellagra with an entirely open mind, and could offer no clear solution. Although in the main he had relied on Goldberger's work, which accorded with the report of the Committee in Egypt, as affording the most probable explanation of the disease, he admitted there were still unexplained links in the chain of its ætiology. The seasonal variation of pellagra as it affected the skin, the digestive and nervous lesions, presented difficulties of elucidation, and was not yet understood. The skin lesions were only a part of the disease, and were known definitely to occur in some cases in parts of the body free from exposure to sunlight or heat, although the typical distribution in portions exposed to their influence were the most common, suggesting the resemblance of the susceptibility of the skin surface to the sensitivity of a photographic plate. In America pellagra, as with beri-beri, was regarded as a food-deficiency disease, and had therefore largely become an economic problem when dealing with numbers of cases, such as 20,000 in the State of North Carolina, and 150,000 in the whole of the United States.

SOCIETY OF SUPERINTENDENTS OF TUBERCULOSIS INSTITUTIONS.

A MEETING of this newly-formed society was held on May 17th at 122, Harley-street, Dr. Jane Walker, the President, being in the chair. Twenty-nine new ordinary members and 19 associate members were elected. Dr. H. O. Blanford (Midhurst) and Dr. Vere Pearson (Mundesley) were elected to two vacancies on the executive committee.

Dr. Leonard Hill, F.R.S., opened a discussion on

The Physiological Principles Involved in the Ventilation and Heating of Tuberculosis Institutions.

He first showed that the effects of bad ventilation were not produced by the excess of CO_2 or by diminution of the percentage of oxygen in the air. Workers in submarines could easily stand up to 3 per cent. of CO_2 without discomfort, while in the high Alps the oxygen might fall to 17 per cent. or less without affecting the health of the mountain-dwellers. Similarly the theory that obnoxious organic matter in exhaled air was at fault was exploded. There was the clearest evidence that the physical properties of the atmosphere had a great influence on the physiology of the body, and the determining factors in good ventilation were the coolness, the movement, and the dryness of the air. The drying power of the air was very important, but in measuring it the ordinary thermometer was a poor help. Dr. Hill described his special thermometer, the kata-thermometer, and showed how cool air of low humidity breathed in through the nose is raised to a constant temperature at the back of the nose by means of the increased flow of arterial blood through the mucous membrane. In addition there was a greater flow of lymph which evaporated. These might be increased as much as five or ten times by exercise in the open air. The drier the air, within limits, the better. The greater the vascular activity of the nose the greater was the power of resisting disease; hence the resistance of outdoor workers to respiratory diseases. Apart from influenza, our soldiers and sailors in the war were singularly free from respiratory diseases. The drying power of the skin was of great importance, since through its cooling power the skin controlled the metabolism of the body. Cooling of the skin by outdoor life might double the metabolism during rest, while with exercise it might increase it five or more times, with concomitant improvement of appetite, of assimilation of food, and of elimination of waste and harmful products.

The discussion was continued by the President, Dr. James Watt, Dr. Marcus Paterson, Dr. W. C. Fowler, Dr. Noel Bardswell, Dr. P. W. Edwards, and Dr. Blanford.

In replying to questions and points arising in the discussion, Dr. Hill stated that people should wear as little clothing as possible, and that the temperature of the cheeks largely ruled metabolism. It was the absolute and not the relative humidity of the air which mattered. It was preferable to keep patients indoors rather than to expose them to wet mists. Fans could not be used too much for combating fever in warm weather. With regard to heating, the ideal conditions were to use the radiant heat of the sun. In ordinary dwellings steam-pipes tended to heat the air at the ceiling and to leave the air near the floor as much as 10° colder. It would be better to reverse the position. If the feet were warm, one could stand any amount of cold air. It was not harmful to have different parts of the body under different conditions of temperature. Such differences kept up the nervous tone, avoided monotony, and acted as a stimulant. He commended the practice of many sanatoriums in shutting up and heating by radiators rooms when empty, and later making use of the radiant heat stored in the walls when the rooms had to be opened up for patients. Dr. Hill intimated that the practical questions of clothing and of heating in open-air institutions would be dealt with in a forthcoming publication of the Medical Research Committee.

The President's motion to approach the College of Nursing regarding a remission of part of the period of their general training in the case of nurses trained under proper conditions in sanatoriums was withdrawn in favour of an amendment to appoint a commitee to consider and report on the whole question of the training of nurses for the treatment of tuberculosis.

Dr. Marcus Paterson opened a discussion on

The Relative Value of Butter and Margarine in the Treatment of Tuberculosis.

He believed that in institutions where margarine was used the necessary supply of the fat-soluble A vitamine was quite well obtained from cod-liver oil or from milk, as well as from the animal fats of meat, bacon, and dripping. In most institutions 14 pints of milk were consumed per patient per week, and this contained the equivalent of from 10 to 12 ounces of butter.

The discussion was taken up by Dr. Francis Clark, Dr. Esther Carling, Dr. A. C. Ta'Bois, Dr. W. G. Kinton, Dr. H. E. Watson, Dr. Blanford, and Dr. W. Goodchild. Several expressed the opinion that there was more indigestion with margarine than with butter, but one speaker thought the want of freshness of the margarine was responsible for this. The practice of some institutions in giving butter on Sundays "as a treat" was criticised as inconsistent. On the whole, opinion was strongly in favour of the use of margarine in place of the more expensive butter where milk or cod-liver oil formed part of the dietary of the patient.

Two motions were postponed till the next meeting, one by Dr. Carling encouraging institutions for the treatment of tuberculosis to employ ex-patients upon their staffs being strongly opposed by Sir Henry Gauvain, who was unable to be present at the meeting.

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION.

A MEETING of this association was held on May 18th, at 11, Chandos-street, W., Mrs. Flemming, M.D., the President, being in the chair.

Dr. Sibyl I. Welsh read a paper on

The Nervous System and the Endocrine Glands.

She said that Hughlings Jackson had described the development of the nervous system in man as taking place at three levels the vegetative or autonomic, the sensori motor, and the psychic On the *psychic* level, the receptors, through which man receives impressions, are the sense organs of sight, hearing, taste, and smell, and it is through these that he comes into relation with the distant external world By association fibres in the cerebral lobes he gains the power of balancing knowledge with emotion, and intuition with instinct, knowledge and intuition tending to be individual as compared with emotion and instinct, which are racial and shared by his kind At this level he becomes an individual member of a herd On the *sensori motor* level the body has acquired the power of balance and progression through space, coming into contact with externals through the skin receptors of touch, pain, heat, and cold, and acquiring self control through its proprio receptive system, whose centres are in the labyrinth, and through the cerebellum, which receives and coordinates all the impulses of sense of position and movement At this level he becomes an individual, and is able to move about On both the psychic and the sensori motor levels the *controlling nervous mechanism is a centralised one, and control is conscious as well as subconscious* On the *autonomic* level *centralised control is no longer essential* This level governs the most primitive reactions, of nutrition, reproduction, and self defence, and at this point the organism is a mere existence without individuality or sociability In man this level is represented by the mutually antagonistic sympathetic and para sympathetic nervous system, and their working is not merely subconscious, but it is unconscious Developmentally this nervous system is not centralised, and in the lowest vertebrates the place of the sympathetic cells is taken by masses of chromaffin cells In man these cells are chiefly found in the suprarenal medulla, and are derived developmentally from the same mass of cells which gives rise to the sympathetic ganglion This shows how an organ which deals with the chemical type of stimulus progresses into an organ producing the higher type of nervous stimulus, and that below the level of the most simple type of nervous control there is a set of systems of chemical control—a set, in fact, of endocrine glands There is thus a digestive system of chemical control affecting the secreting glands, a reproductive system bringing into functional cooperation the remote sexual glands, and a system influencing growth and development The active principles of the endocrine glands are comparatively simple, and identical for all animals, and in the case of adrenalin it has been prepared by chemical methods outside the body They either stimulate cell activity—the hormones—or depress it —the chalones—and a name which includes both kinds is autocoid

There are three main groups of endocrine glands, the thyro parathyroid group, the suprarenal, and the pituitary *The effects of adrenalin has been most worked out, its action is upon the tissues innervated by the sympathetic nerve-endings only, and not on those innervated by the parasympathetic* Dr Welsh then described the *distribution and functions of the two divisions of the* sympathetic nervous system, stimulation of the sympathetic producing means of defence, and stimulation of the parasympathetic promoting nutrition She referred to the treatment of deficiency diseases by gland extracts, with special reference to cases of slight hypothyroidism in elderly women, and to the increase in exophthalmic goitre since the war She suggested that as there was anatomical evidence of a double control, chemical and nervous, of the endocrine glands, there might be a possibility of a double form of treatment, one form being to restore nervous control by psycho therapeutic measures She gave an instance of an advanced case of diabetes where very striking improvement resulted from such treatment

BRISTOL MEDICO CHIRURGICAL SOCIETY.

AT a meeting of this society held on May 12th, with Dr I WALKER HALL the President, in the chair, Dr. R H. NORGATE read a paper on

The Effects of the War on the Mental Condition of the Citizens of Bristol

The paper was based on a study of almost 3000 patients admitted to his care at the Stapleton and Eastville Institutions during the war The main argument of the paper was that the rate of admission of these patients could be correlated with the rise and fall of mental stress and anxiety occasioned by the course of public events This was illustrated by a series of charts In addition, Dr Norgate showed how the war had coloured the mental processes of the insane One interesting point was the much higher incidence of melancholia in women, a fact which he explained by reference to the peculiarly trying, and anxious, and lonely life led by so many women of the working classes during the war Many lessons of *practical* value for the future were drawn from these war experiences One was the need for sympathetic handling of borderland cases To this end he advocated hospital and not asylum treatment He spoke with warm approval of the work done on behalf of women workers by those who were before the war militant suffragettes Dr Norgate commended work on the land as a means of providing wholesome mental occupation, as work on allotments during the war had had excellent psychic results —Dr L E V EVERY CLAYTON, the President elect, said that to the influences of heredity and stress in the causation of mental disorder must be added that of malnutrition —This remark was expanded by the PRESIDENT in some remarks introductory to the next paper, which was read by Dr J. A NIXON, and entitled,

Famine dropsy as a Food deficiency Disease

Dr Nixon said that famine dropsy had been known for several centuries, and had reappeared in the Great War under various names, such as war œdema and hunger œdema British physicians had met with it chiefly in returned prisoners of war It had been widespread, however, in prison camps in Germany and amongst civil populations where food shortage was acute The first clear differentiation of famine dropsy was made by Cornish, in the Indian famine of 1877-78 But even after that date and well on into the war confusion existed between the dropsies of scurvy, beri beri, ankylostomiasis, and pellagra, as well as cardiac, renal and inanition dropsies The clinical picture of famine dropsy was now clear and might be defined as a form of œdema produced by prolonged underfeeding on a diet deficient in *protein and caloric content, with an excess of fluid* Four cardinal symptoms characterised the disease œdema, polyuria, bradycardia, and asthenia *There was, moreover, a remarkable absence of certain signs and symptoms, namely. albuminuria, cyanosis, dyspnœa, and cardiac dilatation, also the nerve changes of beri beri, the skin changes of pellagra, and the spongy gums and hæmorrhages of scurvy* In the blood and urine there was a hypo albuminosis, with increased ammonia, nitrogen, and kreatin, lipoids were greatly decreased in the blood Post mortem there was a total absence of fat in the body As regards pathogenesis, the whole problem of œdema formation was little understood McCarrison's suggestion that excess of adrenalin might be a factor in the production of œdema in general must be borne in mind It seemed clear that famine-dropsy was not an avitaminosis, and experiments tended to show that it was not due to the absence of a single food factor Dr Nixon drew a comparison between the modes of production of certain food deficiency diseases in the following schematic form —

Scurvy	Beri beri	Pellagra	Famine-dropsy
Deficiency of— Water soluble C Fat-soluble A	Deficiency of— Water soluble B	Protein deficiency + toxin (unknown) + sun-exposure	Calorie deficiency (? fat-deficiency) + protein deficiency + water excess

SOCIÉTE DE THÉRAPEUTIQUE DE PARIS

AT a recent meeting of this society Dr PAUL SOLLIER read a note on the Chemotherapy of Morphinism, in which he alluded to the recent communication by Dr Brissemoret and Dr Challamel, who had suggested a demorphinisation cure by berberine and helenine[1] Dr Sollier maintained that it was a mistake to suppose that substitutes for opium or its derivatives existed All the preparations advertised as substitutes were found on analysis to contain a more or less considerable degree of morphine or a more dangerous derivative of opium

Dr GEORGES ROSENTHAL read a paper on Serum Treatment by the Intratracheal Route preceded by the Formation of a Tracheal Fistula and Intubation The method was carried out as follows After local anæsthesia by intratracheal injection of 2-10 c cm of novocaine and adrenalin, an injection of serum was made either in the intercricothyroid space with a specially curved needle if few injections were to be given and at long intervals, or [illegible] numerous and frequent injections were required [illegible] 1 mm tube and a tracheal fistula In children [illegible] might be performed, and the injections made through the intubation tube The very slight risk of [illegible] be avoided by the use of Besredka's method

Dr MAURICE FOURRIER reported a case of [illegible] *Encephalitis treated by neosalvarsan* [illegible] *girl, aged 17, with typical symptoms* [illegible] *benefit was derived from adm*[illegible] *immediate improvement followed* [illegible] *of 0 30 cg neosalvarsan, and became* [illegible] two more injections. Complete recovery ultimately took place.

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[1] THE LANCET, [illegible]

In a note entitled "The Site of Election for a Fixation Abscess is on the Arm, Behind the Posterior Division of the Deltoid," Dr. FÉLIX REGNAULT stated that the chief advantage of a fixation abscess in this situation was that the pain was very slight, being less than that of a large blister. This was due to the fact that the injection involved only the terminal ramifications of the cutaneous branch of the circumflex nerve, whereas when the fixation abscess was in the thigh the branches of the anterior crural nerve supplying the knee and leg were affected. Moreover, a fixation abscess in the deltoid region remained localised and did not show a tendency to cause extensive necrosis like the fixation abscess in the thigh.

MONTPELLIER: RÉUNION OBSTETRICALE ET GYNÉCOLOGIQUE.

AT recent meetings of this society the following communications were read.

M. DE ROUVILLE, on the Systematic Scooping Out of the Cervical Stump in Subtotal Hysterectomy. The author urged this procedure, as it presented all the advantages of the total and subtotal operations without the disadvantages of either. The disadvantage of the subtotal operation in inflammatory cases was that an infected cervix was left behind, whilst in fibro-myoma cases malignant degeneration of the cervix is certainly not negligible. M. de Rouville has observed three unpublished cases. By the hollowing-out operation the cervical stump is reduced to a single shell of some millimetres thickness, and all the drawbacks justly attributed to the subtotal operation disappears. The disadvantages of total hysterectomy are the possible risks of sepsis owing to the vagina being opened up and the real risk of hæmorrhage. The operation described by the author avoids these two risks, and he states, lastly, that by this operation the normal anatomical arrangements of the vaginal roof and pelvic floor are not disturbed.

M. VALLOIS described two cases of Pregnancy complicated by Cicatricial Narrowing of the Vagina. The constriction may be "caniculaire ou annulaire," and an anæsthetic may be required for diagnosis owing to the difficulty of examination of these cases. If the narrowing is caniculaire and rigid extraction during labour should be by the abdominal route—Cæsarean section followed by subtotal hysterectomy. The membrane-like annular stricture is easily dilutable, and permits delivery by the natural passages unless there are marked pelvic obstacles.

M. TEDÉNAT discussed Hæmatosalpinx in the light of four cases which he had observed. Although this condition is generally due to tubal pregnancy it may be due to hæmorrhagic salpingitis, as proved by microscopic sections which showed no decidual cells, no cotyledons, and no erosion of the mucosa. Of the four cases reported by the author three were of this variety, and in the fourth tuberculous salpingitis was found.—In the discussion which followed M. DE ROUVILLE described a similar type of case where obstruction of the adnexal circulation was sufficient to explain the condition. Several sections are essential for accurate diagnosis in these cases.

M. VALLOIS and M. MADON read the notes of a case where induction of premature labour was practised for habitual death of the fœtus, a live child resulting. None of the usual causes of this condition could be found, and all that could be detected was a faint albuminuria in the last days of pregnancy. This disappeared rapidly in the puerperium. In the discussion which followed M. VALNALE, after recalling the discordance between certain light and transient albuminurias and their gravity to the fœtus, said that since the war 50 per cent. of the population in certain centres (e.g., Marseilles) suffered from syphilis, and he predicted that in two generations this percentage will be universal.—M. DELMAS urged the importance of examining the father when the examination of the mother was negative. The good effects of treatment confirmed the importance of this line of examination.

M. DELMAS described two cases where blood transfusion was urgently required, and in the absence of special instruments the author utilised the needle of a spinal anæsthesia apparatus with the happiest results. Citrate solution was used to prevent coagulation of the donor's blood. Lubrication of the trocar with vaseline and only allowing citrated blood to flow through the needle prevented coagulation in the needle itself.

NATIONAL COUNCIL FOR COMBATING VENEREAL DISEASES.—The fifth annual meeting of the Council will be held in the Barnes Hall of the Royal Society of Medicine on Monday, June 7th, at 5 P.M., Lord Sydenham in the chair. The meeting will be addressed by Viscount Astor.

Reviews and Notices of Books.

THE PHYSIOLOGY OF VISION.

With Special Reference to Colour-Blindness. By F. W. EDRIDGE-GREEN, M.D., F.R.C.S. London: G. Bell and Sons. 1920. Pp. 280. 12*s.*

THE EDRIDGE-GREEN CARD TEST FOR COLOUR-BLINDNESS. Same publishers. 1920. 25*s.* net.

THE physiology of vision presents several problems as yet unsolved or only partially solved, and this is not to be wondered at when we realise, first, that the relation of the different elements in the minute structure of the retina to the functions that they subserve is still a matter of debate, and secondly, that many of the problems in question—such, for instance, as those relating to binocular vision or those relating to colour contrast—are admittedly psychological problems, the solutions of which depend on the subjective experience of individuals rather than on physical demonstration. To illustrate this the different explanations of what is known as Purkinje's phenomenon may be cited. The phenomenon consists in the variation of the luminosity of different colours according to the brightness of the light in which they are seen, the relative luminosity of red diminishing, and that of blue increasing as the illumination is diminished. Now, according to some observers this phenomenon does not occur if all the rays are cut off save those that are focussed on the macula, and since the structure of the macula differs from that of the rest of the retina in that cones alone without any rods are found there, von Kries has used this argument to support his theory that the rods and the cones represent two different apparatus for the transmission of visual impulses, the one used only in the dark, the other only in the light. Dr. Edridge-Green, however, finds that the absence of Purkinje's phenomenon at the macula does not in all circumstances hold good, and uses his interpretation of the facts to support his theory that the visual purple is the true visual substance, that it is produced by the pigmented epithelium in combination with the rods, and under the stimulus of light is diffused into the fluid which surrounds the cones, imparting to them the vibrations which give rise to nervous impulses.

Dr. Edridge-Green's book is mainly concerned with the problems of colour vision and colour-blindness, and he is now such an acknowledged authority on these subjects that all that he says about them deserves most careful attention. We could wish, however, that the lucidity of his explanations was equal to what we believe to be the essential soundness of his views. As it is, we should recommend any reader of this volume, who is not very familiar with the subject, to have beside him the author's previous work, "Colour-blindness and Colour-perception,"[1] in which much that is somewhat obscure in the present volume will be made plainer. The gist of Dr. Edridge-Green's theory is the removal of the colour-discriminating faculty from the retina, where the theories of Helmholtz and Hering would place it, to the brain, where he postulates a centre for the distinguishing of colour higher up than that for distinguishing form. The number of colours that we are able to distinguish depends on the extent to which this colour centre is developed, the dichromic being able to distinguish only two, and these the furthest apart in the spectrum, the trichromic three, and so on, most of us having arrived at the stage of distinguishing six definite colours, while the exceptional individual is able to distinguish seven. So far the theory is easy to grasp. The distinction is further drawn between "approximate psycho-physical units" and "absolute psycho-physical units," the former corresponding to the number of different colours seen and the latter to the number of absolutely monochromatic divisions seen in the spectrum. The latter units for any individual may be about three times as numerous as the former. This part of the theory is somewhat harder to grasp, but if we understand it aright an

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analogy might be made with the sense of hearing. The number of different notes in the octave recognised by the majority of people is 12, and when a song is sung these 12 notes are employed. The musician with a "good ear" is able to tell whether any note is sung truly or whether it is sung too sharp or too flat, and the more highly his sense of hearing is developed the more minute is the difference in tone that he can detect. We suggest that the 12 notes correspond to Edridge-Green's "approximate psycho-physical units," and the total number of differences that anyone can detect by comparing different tones heard in succession to his "absolute pyscho-physical units." However this may be, the psychic theory of colour vision appears to fit in far better with observed facts than either of the older theories. An obscurity which needs explaining is the occasional existence of colour blindness varying in degree in the two eyes of the same individual. Such a case is given with much detail in Dr. Edridge-Green's former book (pp. 196-203), and his theory is obviously incomplete until it is explained. Besides the degree of development of the brain centre, it would seem that there must be some variability in the retinal apparatus by which the light waves that cause the sensation of colour are transmitted as nervous impulses, and that this may be different in the two eyes. Such an explanation is hinted at by the use of the phrase "retino-cerebral apparatus," but it is not worked out. However incomplete the book may be, it is the work of an original thinker, and will be found to be essential by those interested in the subject.

The Edridge-Green card test has been devised to meet the demand for a simple, portable, and comparatively inexpensive test for colour blindness. The wool test, we are told (and the statement can obviously be challenged) has fortunately become obsolete in all important examinations of vision, for not only did it utterly fail to detect more than 50 per cent. of the dangerously colour blind, but also rejected many normal sighted. The principle involved in the card test is the perception of difference between two colours presented in a special diagram of spots of irregular shape and various tones. On a ground of separate spots of one colour a letter is formed in spots of another colour, and each card in the series is specially devised with the object of detecting some special form or degree of colour blindness. The cards are contained in a neat leather case, and form by far the handiest test for colour blindness with which we are acquainted.

PRINCIPLES OF HUMAN PHYSIOLOGY.

Third edition. By ERNEST H. STARLING, C.M.G., F.R.S., Jodrell Professor of Physiology in University College, London. London: J. and A. Churchill. 1920. With 579 illustrations, 10 in colour. Pp. 1315. 25s.

THE second edition, which we reviewed in our issue for July 24th, 1915, is followed by a worthy successor, in which are incorporated such advances as physiology has made during the five years of war. There are to be found a number of alterations, especially in the latter half of the work, and the book itself has been increased in size by 50 pages. The chief changes are in the section on the sense organs, which has been revised and largely rewritten by H. Hartridge, M.A., M.B. Camb., who is entirely responsible for the new section on vision. The domain of physiology has become so extensive that it is difficult for a single author to be master of all its multifarious departments and advances, especially when the calls of war duty have absorbed much of his time. Some of the changes and omissions have resulted in discarding methods of proved utility. The principle of testing visual acuity is laid down, but we failed to find the familiar phrase, "Snellen's test types," mentioned as such in the previous edition. All reference to the phakoscope and Sanson-Purkinje images seems to be omitted. Even Scheiner's classical experiment, as well as the diagram to explain it, seems to have fallen out. The illusions referable to vision are hardly dealt with, and the old familiar Zöllner's lines have disappeared. A simple diagram showing the formation of an image on the retina would be useful. In connexion with the yellow spot, Clerk Maxwell's experiment for demonstrating its existence by means of a solution of chrome alum does not seem to find a place. On the other hand, the causes of night blindness, which has come into prominence during the war, and the theories of colour blindness are fully appreciated and discussed. Holmgren's test with coloured wools is recognised as only of historic interest, and Edridge-Green's lantern is figured and described. As to the numerous theories of colour blindness, the author says, "there appears to be more in favour of Young's hypothesis than is to be found for its rivals. Further than that it is not at present advisable to go." Having regard to the importance of colour blindness in its practical relations to daily life on sea and on land, he rightly adds, "no test can be too searching, and no border-line case should ever be passed; the risk is too serious." As to the theories of hearing, there is a relatively long account and analysis, with the conclusion "it would appear that the evidence in favour of Helmholtz's hypothesis is very convincing."

Among other new matter we notice a mention of Douglas's bag for determining respiratory exchange in man, the "spinal man," "destructive lesions of the cerebellum in man," "diabetes in man," "conditioned reflexes," the very effective exposition of diets, metabolism, the biological value of different forms of proteins and other foodstuffs. Accessory food substances are given the alternative name of food hormones, the term vitamine being relegated to a footnote (p. 694). The "value of alcohol in a diet is entirely that of an accessory or adjuvant in exciting appetite by its taste and smell." The chapters on the heart are both illuminating and practical. Under heart reflexes Goltz's tapping experiment might have been added. On the very practical question of muscular exercise it is interesting to note that the margin of response in normal individuals may be 600 per cent.—i.e., over a moderate period of time the individual may increase his muscular work, his respiratory exchanges, and the rate of his circulation six times above that during rest. Perhaps some more details on the endocrine glands would have been useful, more especially as regards the thymus gland—e.g., status lymphaticus, the pineal gland, and cortex of the suprarenal glands.

Altogether this work is a solid, substantial, and illuminating exposition on quite independent lines of the present state of physiology by one who has added not a few important building stones to the superstructure itself. The whole constitutes a comprehensive and suggestive treatise rather than a mere student's text-book, and will be welcomed both by aspiring students and practitioners of medicine.

CHILD PHYSIOLOGY.

The Principles of Ante-natal and Post-natal Child Physiology, Pure and Applied. By W. M. FELDMAN, M.B., B.S. Lond. London: Longmans, Green, and Co. 1920. With 6 plates and 129 illustrations. Pp. 691. 30s.

THIS is an attempt to give, within the compass of a single volume, a complete account of the physiology of child life from conception to adolescence. It originated, the author tells us, in a course of elementary lectures on child physiology delivered at the Infants Hospital in Vincent-square, where he is assistant physician and lecturer, for he was then led to realise the need for a summary of the investigations published in a host of journals of various languages accessible only to the few. The works of Russians, Germans, Austrians, Frenchmen, Americans, and Italians have been put under contribution, while anatomy and morphology are given a place only so far as these are necessary for a proper understanding of the physical and physico-chemical processes with which the book essentially deals.

The first portion of the book takes up ante-natal physiology, starting from the germinal cells, the nature of hereditary processes, and the at present accepted laws of heredity, leading on to the mechanics of development and a description of the general physiology of pre-natal development and metabolism. The fœtal systems are then taken seriatim, nutrition, circulation, respiration, and so on. Then follow chapters on the physiology of pregnancy, of birth, and of the neo-natal period, with a similar analysis of post-natal functions. A final chapter is devoted to the anatomical and physiological peculiarities of the premature infant.

If the picture is an impressionist one the fault lies with the subject and not with the author. It is, in fact, his peculiar merit that he has defined the limits of our ignorance, which is in ante-natal matters almost abysmal, as well as the limits of our knowledge. Small portions of the subject have been intensively studied, as by Galton, Mendel, Camerer, Baginsky, and Ballantyne, but they scarcely as yet amount to more than oases in vast deserts of unexplored territory. To take an example, the author describes the mechanics of development of the vertebrate ovum through the stages of subdivision in three planes to the blastula and then to the gastrula, changes so far explicable in mathematical terms, only to break off at the stage when certain outgrowths occur which afterwards give rise to limbs and other organs. Here he has to admit our ignorance of what it is that turns the apparent chaos of the germinal globe into the orderly arrangement of the embryonic world. The constraining hereditary force, to use His's metaphor, cannot as yet be expressed in terms of mechanics or physics or chemistry.

Something of the author's industry is apparent from the references, often five or more on a page, to original articles and dissertations in as many languages, and from the index of names, which runs to at least a thousand items. It is good that at the present time, when child welfare work as a social and emotional movement is gaining such momentum, the groundwork should be thus ably set forth on which to build a superstructure of preventive and remedial method with some prospect of success.

A MANUAL OF PRACTICAL ANATOMY.

By THOMAS WALMSLEY. In three parts. Part I., Upper and Lower Limbs. With preface by THOMAS H. BRYCE, M.A., M.D. London: Longmans, Green, and Co. 1920. Pp. 176. 7*s.* 6*d.*

AT a time when books are getting longer, the numbers of subjects increasing, and the time at his disposal getting shorter, the student may welcome an honest effort to lighten his labour by reduction of the amount of printed pages through which he has to find his way in the course of his work. The preface by Professor Bryce indicates the aim of the author of this book to provide a "directory of dissection," with the aid of concise descriptions to guide personal observations. Hence the directions are printed in larger type than the descriptive matter. The aim as outlined is a praiseworthy one, but it is very doubtful if as much can be said for an effort to indicate the amount of knowledge that may be expected from the student, which would appear to be a further aim in the work. There is no item of knowledge in descriptive anatomy which—provided one knows it—may not turn out to be of some practical value in clinical work, to-day or to-morrow or 20 years hence, and experience shows that the fear of any student learning or knowing too much is quite without foundation.

Professor Walmsley's introductory chapter is short but useful and to the point; it might be suggested that a brief account of the use and meaning of fixed terms of position could be added with advantage. The directions and descriptive matter are clearly put, and appear to be adequate for their purposes. It is understood, of course, that the practical work is carried out under the direction of demonstrators, and the description is only a guide to observation, to be extended by fuller teaching. The figures are simple and schematic, and will without doubt prove useful to the dissector. But attention must be called to certain faults in these drawings. Thus, Fig. 6 might give a wrong impression about the attachments of the axillary sheath; Fig. 22 is wrong in essential details; Fig. 41 shows the main vessels out of place and the semi-membranosus partly deficient; Fig. 42 seems to put the insertion of the adductor magnus on the lower part of the articular condyle; and in Fig. 47 the relation between the short extensor and the annular ligament is not that usually found. It is interesting to note that the terminology used is not of the B.N.A., though it is not exactly that of English anatomy: the clumsy "collateral" is used for ligaments, presumably because of the use of the words "lateral" and "medial" in place of the old "outer" and "inner," and practically the only other differences, in the present part at any rate, are to be found in the names given to certain cutaneous nerves. The cutaneous nerves of the upper limb do not seem to be very happily named, and, in the case of the front of the thigh, confusion might possibly arise in the mind of a student whose teachers made use of the older terms of position. Incidentally, it may be pointed out that it is more correct to refer to the angle of Louis than to name it after Ludwig; it is a very small point, but there is no virtue in a Teutonic sound, per se. Although it has been necessary to call attention to certain weak places in the book, it leaves a good impression on the reader, and its simple and clear style, with its practical character, will give it a place among dissecting manuals in everyday use.

OCCUPATIONAL AFFECTIONS OF THE SKIN.

Second edition. By R. PROSSER WHITE. London: H. K. Lewis and Co. 1920. Pp. 360. 25*s.*

OCCUPATIONAL affections of the skin have a legal as well as a medical interest, owing to the inclusion in the schedule to the Workmen's Compensation Act of diseases for which compensation is payable, of dermatitis and ulceration of the skin produced by dust or liquids. Skin affections occur in association with scheduled diseases, such as poisoning by mercury, arsenic, trinitrotoluene, aniline; or as distinct entities, for example, among those who manipulate tar, pitch, paraffin, soot, or chrome. Practitioners working, as the majority do, among industrial populations require definite information as to the occurrence and causation of skin affections which they see in their daily work. In order to meet this need Dr. Prosser White, who had already for many years made a specialty of the subject, five years ago brought out a manual. Apparently, the book met a definite need, as we now have before us a second edition, not only brought up to date, but enlarged, containing several useful new illustrations and much additional matter.

The author has set himself the task of compiling from literature reports upon and references to skin affections of industrial origin. He has amassed a wealth of detail and information, and has then grouped it by occupation. We incline to the view that grouping either by lesions or causation would have been more useful, and would have allowed the author more scope for thought. Facts, however numerous, unless arranged in suitable order, do not advance knowledge; "we must, therefore, form tables and arrangements of instances, in such a method and order that the understanding may be able to deal with them," said Bacon, and his advice should still be heeded. As the book stands, the personality and thought of the author lie hidden behind the facts quoted, and seldom peep through. The book is in consequence rather an encyclopædia of data than a contribution to the elucidation of underlying physical or chemical influences which give rise to similar lesions. An instance may be given. A reader by careful search through the volume may discover that workers exposed to bichromate of potash may sustain: (1) perforation of the nasal septum; (2) characteristic indolent and painful ulcers on the knuckles and sides of the finger-nails; and (3) erythema and dermatitis of exposed areas of skin; and that common salt, lime, arsenical and other compounds can give rise to exactly similar lesions. He may be led to cogitate as to whether these similar lesions represent similar reactions on the part of the tissues affected to the agencies concerned, as to whether each agent possessing marked hygroscopic properties may not exert its influence by depriving the tissues of moisture, and as to whether he may not expect to find similar lesions from exposure to other hygroscopic substances.

The author of the book under review will give no aid here, he is content to state the facts and to suggest remedial treatment

Modern medicine with its development of prevention seeks for generalisations, and we regret that a book compiled with such labour, and dealing with occupations where prevention is, comparatively speaking, easily attainable, should not deal with underlying principles We have already mentioned that occupational dermatitis has a legal as well as a medical interest, but we are astonished that Dr Prosser White has omitted all reference to this side of the question Brought in contact as he must be in his daily work with compensation cases, his experience of the working of the Act, of its advantages and disadvantages, would have been of great interest and value to others Further, an exposition of the law would have been of great help to busy practitioners meeting with cases, but ignorant as to how to proceed in the interest of their patients Nevertheless this book must prove of great value, if only as a key to the literature of an interesting branch of industrial medicine, it is to day the only book dealing with this subject

LECTURES ON VENEREAL DISEASES

By LEONARD MYER, F R C S London Albany Press 1919 Pp 88 6s

THE educational schemes which have been initiated in order to instruct the public with regard to the nature and dangers of venereal disease have been many and various The literary output dealing with venereology from the professional point of view has also been a huge one There exists however, an intermediate and most important group of individuals for whom a comparatively small provision has been made, we refer to those who, although not members of the medical profession, yet do not belong to the ordinary lay public, such as nurses, midwives, masseurs and others who are intimately brought into direct contact with these diseases in the pursuance of their professional avocations It is important that such persons should possess a wise and proportionate view of the subject, together with a clear idea of their own limitations Lectures have been given in various hospitals to nurses on this subject, but we are convinced that there are large numbers engaged in private nursing or employed in nursing homes who have never had the opportunity of attending any such courses It is not remarkable, but much to be regretted, that an ignorant and unsympathetic attitude is assumed in many instances

We heartily welcome Mr Myer s endeavour to deal with this difficulty He exhibits a due sense of proportion, an interesting style, and a clear method of exposition We recommend his book confidently to members of the classes to which we have referred But if he had treated the two diseases gonorrhœa and syphilis separately it would have been an advantage And in another edition we hope the author will see his way to writing with even a greater degree of insistence upon the extent and dangers of ophthalmia neonatorum A slip has been made as regards the relation of the peritoneum to the posterior wall of the uterus on page 30, which will no doubt also be corrected in a new edition The book is certainly deserving of success

DIE THERAPIE DER HAUT UND VENERISCHEN KRANKHEITEN

Mit besonderer Berucksichtigung der Behandlungstechnik fur Arzte und Studierende By Professor Dr J SCHAEFFER (Breslau) Vierte vermehrte und verbesserte Auflage Berlin Urban und Schwarzenberg 1919 With 67 illustrations in the text Pp 485 M 22

AN excellent book, written for practitioners and students this is a collection in book form of a series of articles, most of which appeared in the "Medizinische Klinik," and of notes written for post graduate courses The author is quite right in laying great stress on correct technique in the treatment of skin and venereal diseases, and in the first few chapters deals with the subject in a clear manner, giving full details at the same time Abundant and distinct illustrations are most helpful in demonstrating the practical application of the directions given in the book The skin diseases are treated alphabetically, a fact that makes it easy for the practitioner to find his needs

It is surprising that diathermy and radium treatment, which of recent years have become so important, have been dealt with but casually, whereas X ray treatment and the application of actinic light are fully discussed The last two chapters (150 pages) are devoted to venereal diseases In the diagnosis of syphilis no mention is made of the Congo red method, which has been proved to be superior both to Burri's method and the staining method of Giemsa Although the author has greater faith in vaccine therapy than the majority of German authors, he has seen no benefit from this treatment in uncomplicated gonorrhœa, which is contrary to the experience of many observers In complications such as prostatitis, epididymitis, arthritis, vaccine treatment has apparently yielded very good results in his hands

Throughout the book many prescriptions are given, the price being mentioned also That it was written during the war is apparent from the fact that substitutes for the prescriptions are frequently indicated A useful discussion on marriage consent after gonorrhœa and syphilis will be found at the end of the chapters on these diseases The fact that there have been four editions within four years is proof of its usefulness

WITH THE 1/1ST LOWLAND FIELD AMBULANCE IN GALLIPOLI

By G H EDINGTON, M D, D Sc, Colonel A M S (T F) Glasgow Alex Macdougall 1920 Pp 72

THE WORK OF V A D LONDON NO 1 DURING THE WAR

Edited by STANLEY UNWIN London George Allen and Unwin, Ltd 1920 Pp 96 5s

THE sharing of new experiences is provocative of authorship, and the histories of various units, which have lately appeared, are of vivid interest to the members of the units themselves and sometimes to those outside the focus of experience Colonel Edington writes the history of the 1/1st Lowland Field Ambulance which left England on June 5th 1915 landed at Helles on the night of June 27th 28th and stayed there until the final evacuation of the Peninsula on the night of Jan 8th 9th, 1916, a six months record of useful work with the usual alternation of excitement and drudgery

The work of the V A D No 1 was necessary and valuable, and for that reason has a claim to reward Mr Unwin s lucid account of its doings may help in drawing attention to a branch of Red Cross activities which escaped much public notice at the time

PHYSICAL RECONSTRUCTION AND ORTHOPÆDICS

By HARRY E STEWART, M D, Captain, M C, U S Army, Division of Orthopædics, Assistant Director, Section of Physiotherapy, Surgeon General s Office, &c New York Paul B Hoeber 1920 Illustrated Pp 275 $3 75

THE author describes this book as a condensed manual Baking, hydrotherapy, and electrotherapy, being taken together, are only awarded 19 pages while "massage" is disposed of in 33, including, in both cases, the free use of illustrations It follows that the matter thus condensed is very elementary The second part of the book which deals with orthopædics, is equally condensed, and many important points are omitted In the treatment of sacro iliac strain, for example, no reference is made to Goldthwait's extensive and valuable work, and we look in vain for advice as to the treatment of Colles s fracture and of fracture dislocations of the ankle after the stage at which deformity has been reduced A chapter on foot strain is, however, a marked contrast to the rest of the book (it occupies 24 pages), and is far the most useful part of the work The book will indicate to those uninitiated in physical therapy the possibilities of treatment, it will not guide them in prescription or performance. The illustrations are, for the most part, excellent, but those showing the electro-motor points (after Pariset) are lacking in clearness.

JOURNALS.

British Journal of Experimental Pathology. Editors: C. H. BROWNING, P. FILDES, W. E. GYE, E. L. KENNAWAY, E. H. KETTLE, J. MCINTOSH, J. A. MURRAY, W. J. TULLOCH, C. M. WILSON. London: H. K. Lewis and Co., Ltd.—The second number of this journal reaches a very high standard of excellence, upon which the contributors and editors are to be congratulated. If the same standard can be kept up, British contributions to pathology will have nothing to fear from comparison with the work of any other country. As will be noticed in the short summary of contents given below, the first critical review of a pathological subject is included in this number. The subject chosen is influenza, and we can think of no other condition more in need of critical examination.—The Value and Mechanism of the Colloidal Gold Test, by J. Cruickshank, M.D. This article is a timely contribution to a subject of great importance, upon which a considerable amount of work has been done, chiefly in Germany and America. The test is applied to cerebro-spinal fluid in cases of suggested syphilis of the central nervous system. It owes its origin to the work of Zsigmondy upon the influence of electrolytes on colloidal gold and the "protective action" of colloids. Lange applied Zsigmondy's work in testing the protective powers of normal and syphilitic sera, and later of spinal fluids. It was found that spinal fluid from cases of dementia paralytica has the property of precipitating the colloidal gold, and it is this reaction which has been recommended for diagnostic purposes. Dr. Cruickshank, who has evidently worked for some considerable time at the question, reviews very thoroughly the literature of the subject, describes how to prepare the reagents employed, and particularly the colloidal gold, and, basing his conclusions upon his own work, states that the "results of the colloidal gold test coincide with those given by the Wassermann reaction." There is evidence, however, to show that the gold test is the more delicate. The substance in the spinal fluid which reacts with colloidal gold is not dialysable and resides in the globulin.—The Experimental Transmission of Encephalitis Lethargica to a Monkey, by J. McIntosh and H. M. Turnbull. The authors give an account of the successful transmission of encephalitis lethargica to two monkeys. One animal was injected with an unfiltered emulsion of pieces of spinal cord and brain of a fatal human case of the disease, and the second with a filtered emulsion. The first animal was killed three weeks after inoculation, when it was in a drowsy condition. The second animal died two months after inoculation after an illness lasting, with remissions, seven weeks. The histological examination of the central nervous system of this animal is given in great detail, and beautiful figures are shown to illustrate the main lesions. There can be no doubt that the authors have been successful in transmitting the disease with material which has passed through a Berkefeld candle.—Conditions which are Conducive to the Production of Shock by Histamine, by H. H. Dale. The author shows in this paper that whereas histamine can be given intravenously to a cat in doses up to 10 mg. per kilo., without any severe or lasting effect, in animals under ether anæsthesia 1 to 2 mg. per kilo. produces fatal "shock." A large hæmorrhage similarly reduces an animal's resistance to histamine. Anæsthesia produced with nitrous oxide and oxygen does not lower the resistance to histamine.—The Comparative Oxygen Avidity of Normal and Malignant Cells Measured by their Reducing Power on Methylene-Blue, by A. H. Drew, D.Sc. It was shown by Ehrlich in 1886, in a classical experiment, that fresh tissues possess the power of reducing methylene-blue to its colourless form. Dr. Drew has utilised this reaction to compare the oxygen avidity of tumour cells with that of normal tissues. His method of procedure is to mince up the tissue and place the mince in a very dilute solution of methylene-blue in Locke's fluid, incubate at 37° C., and then to read at intervals the length of column decolorised. It is found in this way that normal cells are much more active reducers of methylene-blue than malignant cells. Of normal tissues kidney is the most active, followed closely by testis. The embryo is intermediate between normal and malignant tissues. The reaction is not obtained when the cell is killed by freezing and grinding, thus showing that the phenomenon is not entirely dependent upon an enzyme.—The Ætiology of Influenza, by Paul Fildes and J. McIntosh. This is the first instalment of a critical review of the subject. The authors have chosen, and we think with advantage, to analyse the basis upon which we may legitimately conclude that an organism is the causal element in any given disease. Koch's postulates, which have been accepted for thirty odd years as the guiding principles in this matter, were not, it appears, ever definitely formulated by Koch. In their historical inquiry the authors have had the advantage of consulting Professor William Bulloch, whose knowledge of bacteriological and pathological literature is unrivalled. It appears that Henle was the first to recognise clearly that, in order to prove that a given formed element in a lesion is of causative significance, it is necessary to isolate the element and test its powers. This, however, is by the way, and serves as introduction to the serious consideration of a vital and very difficult problem. The three main conditions which an organism should fulfil, if it is to be established as a causative agent of disease, are:—

> (1) The virus should be capable of being recognised in a large proportion of the cases of the disease, preferably in relation to the chief lesions; (2) the virus should be shown to be living; (3) the virus should be shown to be capable of reproducing the disease in other animals.

These three rules are critically discussed and their application illustrated by reference to "modern instances."—In the section devoted to technique S. L. Baker describes a method for the demonstration of the capsules of bacteria, depending upon the use of Indian ink; and P. Fildes gives the formula for the preparation of a medium for the cultivation of *B. influenzæ*.—The journal is well produced, well printed, and of a handy size. It deserves the whole-hearted support of the profession.

Tubercle, a Monthly Journal Devoted to all Aspects of Tuberculosis, Vol. I., No. 8, May, 1920.—In a leading article Dr. J. B. McDougall puts to the test of war experience the belief that pulmonary tuberculosis is induced by trauma of the lung. Excluding six cases whose pre-existing lung disease does not seem to have been aggravated by the wound, only one out of a total of 139 cases of penetrating wound of the chest subsequently developed pulmonary tuberculosis, and several authors are quoted as recording similar results. In fact, if the trauma had been fractured femur instead of injury to the lung the proportion affected by subsequent tubercle could hardly have been less. No doubt patients with trauma of the chest have often been condemned as tuberculous owing to the ambiguity of physical signs, for Dr. McDougall points out that "no sign or symptom of phthisis may not be simulated by a foreign body in the lung if an examination of the sputum be neglected." X rays are, of course, valuable, but not infallible. A very interesting little research on the incidence of tuberculosis in an isolated Norwegian village has been carried out by Dr. Björn-Hansen. Tuberculosis of the skin is the subject of a number of abstracts of recent articles on the numerous forms of these affections, covering no less than nine pages. Among other articles a detailed account of tuberculosis administration in Edinburgh is worthy of special notice by practical workers.

Paris Médical.—The French medical press is occasionally enlivened by articles on the historical or artistic aspects of medicine. The issue of the *Paris Médical* for May 1st contains some interesting Notes on the Measles of Lous XIV., by MM. A. Gilbert and P. Cornet, in which the authors, besides giving the history of the monarch's illness, quote St. Simon's remarks on his prodigious appetite, and the poem on the King's convalescence, written by Racine, which gained for the poet his first presentation at Court.—The same number has a delightful article by M. Malorey on the Monastery of the Val de Grâce up to the death of Anne of Austria. Few people who visit the Val de Grâce Military Hospital realise the antiquity of the buildings whose foundation-stone was laid by Anne of Austria in 1624, and M. Malorey has evolved not only the ulterior history of the original building Le Petit Bourbon, but the tale of the Queen's difference of opinion with her architect Mansard, and many other historical items sandwiched between philosophical reflections. The pathological side of art has always interested doctors, and, in *Paris Médical* M. Henri Roché discusses the Salon de l'École Française from the medical point of view with a genial indulgence that dwells on the good intention rather than on the feeble accomplishment. His note on one of a series of pictures by M. Prévot, designed for the musée of the Val de Grâce is an example of his kindly criticism. The painting is called "The Wounded of the Val de Grâce Taking Refuge in the Cloister during the Bombardment of Paris," and M. Roché says of it: "This composition is rather confused, but suits the subject; if the story attracts us the perspective and the lighting are less defensible." The sight of a number of nude women painted one blue, one violet, one red, and one yellow, by the same artist, only draws from M. Roché the mild comment that he must have frequented hospitals too much to be able to see clearly! The picture of a pre-human family called "L'Age de Pierre," by Riolet, seems to have somewhat strained M. Roché's lenity, but after noting the strange resemblance of the male to the late Francis Joseph and describing the picture, he can only bring himself to say, "And to think that there are such beautiful subjects for painting without going back to prehistoric times!"

THE LANCET.

LONDON: SATURDAY, MAY 29, 1920.

The Future of the Medical Services: The Report of the Consultative Council.

WE publish this week a full abstract of the Interim Report on the Future Provision of Medical and Allied Services which has been made by the Consultative Council on these Services to the Ministry of Health. The Report is signed by Lord DAWSON OF PENN as Chairman of the Council, and Colonel C. J. BOND as Vice-Chairman, on behalf of the Council, whose personnel we recall to memory in our abstract. It may be taken therefore that the Report, rendered by a trusted group of experts, is a unanimous one, though it stands to reason that where so many difficult and even contentious points have been in question the unanimity must have been arrived at by a considerable adjustment and readjustment of personal views. This is exactly as it should be, having regard to the significant note of introduction from the Minister of Health, and the deliberately loose reference to the Council. Dr. ADDISON points out that the Report has been published to facilitate discussion, having in view, no doubt, the impending Health Services Bill. What, therefore, the Minister of Health expects from the Report is general guidance in the framing of a large measure which will inevitably receive many modifications between the stages of its inception and its final enactment. Here the Report should be of real utility, for, having many polemical subjects in review before them, the members of the Council have come to certain common conclusions, by acceptance of which time will be saved in the future discussion of health matters. Moreover, the profession and callings concerned, and the public, are asked to study the Report, and thus help by their criticism to obviate differences of opinion, as far as may be, at an important stage of public health affairs.

The scheme laid down in the Report is quite a detailed one, the space that might have been occupied, perhaps fruitlessly, by recounting the arguments which led to the conclusions, being taken up more practically with the setting out of the steps of reform and the development projected. It is clear to all engaged in public work that the scheme cannot be set in motion at once in its entirety, however much goodwill on the side of the public and on the side of the medical profession may lie behind it, because considerable changes are postulated in the existing law, and a great expenditure of public money is assumed; yet trial along many lines, to see how far it furnishes a practical solution of public and professional difficulties, appears quite possible. Indeed, as Dr. ADDISON points out in his foreword, action is already being taken by the Ministry of Health and the local authorities in relation to many matters touched upon in the Report. The document seems to us, therefore, both in scope and temper, much what might have been expected from the Consultative Council, which was asked to give expert advice as to the systematised provision of the services in question, to be applied to a given area. The recommendations will have to be considered in relation to a comprehensive policy, but in their general bearings, as they apply to a given area, their justification in that area should lead to natural rivalry in other districts. Thus State help could be directed by the local successes, and could be applied elsewhere, and in a wider manner. For it will not be forgotten that the Report is an interim one, it being clearly the intention of the Council to follow up its recommendations by advice to be given, when and where needed, for the extension and development of health services. It is right to lay stress on the interim nature of the Report because of the promises of work and the opportunities of its revision which are conveyed by the term. While the scheme for the future of the Medical and Allied Services is symmetrical and clear, it would be perfectly easy to raise questions as to the practicability of this or that suggested move. But it would be difficult to find places where the problems, as stated, are not the logical derivatives of facts familiar to many of us. In its broad outline the scheme supplies that proper intercourse between centre and periphery which has been notoriously absent from the health services of the country. In this way it is itself representative of the very sentiments which, by their insistence upon the need for a unifying and directing force in public health affairs, led to the institution of the Ministry of Health. The Report will be on sale through any bookseller, or directly from the Stationery Office, and although we have found room to publish an abstract which reproduces its essentials, we urge upon all our readers the necessity of consulting the actual document. All will remember how the overwhelming evidence in regard to the multiplicity of central departments and of local authorities brought about the Ministry of Health, if only as a remedy for such anomalies; and we need not recapitulate the glaring examples supplied by numerous witnesses of the comical overlapping and intricate complexity of health administration which led to the new legislation. But what has to be remembered is—and strange it is that it should be forgotten—that the Ministry of Health arrived when the country was plunged in war, and that the processes of evolution were all immediately complicated, and some for ever suspended. Nor can it be said that the circumstances for the orderly working out of our sanitary salvation are yet in the least promising, while the effects of the war still hinder public work in every direction. But this interim Report is a practical step forwards; it is a piece of direct assistance to future legislation by its suggestions for the removal of the complications and absurdities of the past and for giving effect to a better state of things.

Preliminary to the presenting of the Health Services Bill to Parliament the Ministry of Health has thus received from its Consultative Council advice, ideal in scope and detailed in design. We may state at once our belief that with the general spirit of the Report, saying nothing whatever as to its practicability as a whole, the members of the services concerned will be in considerable agreement. Those desirous of a whole-time State service will be disappointed that their beliefs are not adopted, but the suggested extension of duty, which will carry with it State or municipal pay, shows that their reading of the facts of professional life has received close attention. Those who, in defiance, as it always seems to us, of the finer and more economical course, have insisted upon the early death of the voluntary system in our hospitals, will find in the scheme proposals for the immense improvement of that system, if generously supplemented in the indicated directions. This may be read as acquiescence in many of the arguments of those who oppose the voluntary system, being a confession that much outside help is required if that system is to be maintained. While the medical profession, in the Report, is regarded as a whole chain, the separate divisions have received symmetrical attention, each link being appraised. The connexion between the general practitioner, the consultant, the specialist, and their auxiliaries, as well as the actual ways in which domiciliary and institutional treatment affect each class, have been thought out, and the scheme has been evolved with broad expectation of better things. In a score of places there is room for the discussion, which the Minister of Health asks for, which the Consultative Council expects, and which reference to the columns of the medical press will forecast. For the scheme, while new in setting and executed with the free brush of those who paint ideally, is in many respects on all fours with schemes which have been before the medical profession for some time. It is no *pastiche*, but the Consultative Council will certainly not sacrifice the value of heredity by suggesting that its plan has not had worthy ancestors. Reform has been proected along similar lines for many years, notably by the British Medical Association, whose scheme or the establishment of hospitals, clinics, and treatment centres for different areas has much in common with the scheme of the Consultative Council when dealing with institutional treatment. To unify our profession, and to make the reatment for all assume the standard which reedom of thought and of action alone can give, has been the underlying idea of the Report, and to give expression to this idea, is the duty of the Consultative Council.

We publish also this week a summary of the First Report of the Welsh Consultative Council. It will be seen how far it is in general agreement with the English Report, and economists will rejoice in the evidence which it produces that much of what has to be done is already in the active doing. The particular significance of the Welsh Report is that it emanates from a composite body, so that one document puts forth the views alike of the representatives of the Medical Profession, of the National Insurance Commission, and of Local Medical Administration.

Opium, the Treaty and the League.

NOT a little confusion exists in the minds of some who have attempted to follow the respective provisions of the International Opium Convention of 1912, the Versailles Peace Treaty, and the League of Nations Covenant in regard to the restrictions it is sought to place upon the traffic in drugs of addiction. It may be well to endeavour to elucidate the present position to which this international effort to check the illicit use of opium, morphia, cocaine, &c., has now attained. In 1911–12 a diplomatic Conference was held at The Hague, at which the representatives of some dozen Powers collaborated in drafting an international convention for the limitation of the use of these dangerous drugs to legitimate and medical purposes. The Indo-Chinese trade in opium, which had received the unanimous condemnation of the House of Commons in 1906 as "morally indefensible," petered out, under an agreement between Great Britain and China, in the year 1917. But at a Commission held in Shanghai in 1909 it had already become clearly evident that the so-called opium evil was not a question of the Far East alone, but that in the form of addiction to morphia, heroin, and cocaine the Occident as well as the Orient had its narco-maniacs, and that any measures for meeting the evil must be world-wide in the extent of their operation. The United States had come to recognise that not only was this question an affair of theirs in their Philippine possessions, but that "a serious opium evil obtained in the United States itself."

The Convention drawn up at The Hague in 1912 aimed at the international control of traffic in opium, whether raw or "prepared" for smoking or medicinal use, morphia, heroin, cocaine, and their respective salts, and the regulation of the production, sale, distribution, or possession of these "dangerous drugs" through legislation and administration by each of the contracting parties. Its effectuating clauses provided for the signature and ratification of the Convention by all Powers, in addition to those represented at the Shanghai Commission and The Hague Conference, for the coming into force of the Convention and for the enactment of the legislation which adhesion to the Convention involved. Two subsequent conferences at The Hague, in 1913 and 1914, the last just before the outbreak of war, were able to record considerable progress in securing the adhesion of some 44 Powers to the Convention through the intermediation of the Netherlands Government. Moreover, at the third and last Conference a special protocol was devised for signature by such of the Powers as had already ratified the Convention and who were prepared to take action without waiting for the other Powers to come into line. The five years of war of course put an end for a time to any such international coöperation as the effectuation of the Convention implied. When peace came the threads were again taken up, and by Article 295 of the Treaty of Versailles those signatories to that Treaty who had hitherto not signed or not ratified the Opium Convention were held to have both ratified the Convention and signed the special protocol to which allusion has just been made. Thus Germany, which had in June, 1914, refused to ratify, was brought into line with Powers such as the United States, the Netherlands, China, and Norway, which had both ratified the Convention and signed the special protocol. The same article of the

Versailles Treaty required the enactment of legislation in accord with the provisions of the Convention within 12 months from the coming into force of that Treaty. This date has since been fixed as Jan. 10th of this year, so that before Jan. 10th, 1921, legislation by the contracting parties should have been passed.

From an answer recently given in the House of Commons the Government appear to hold that Great Britain, although she had ratified the Opium Convention prior to the war, is covered by the terms of Article 295 of the Peace Treaty, and is bound to enact the required pharmacy legislation this year, as well as to observe the provisions of the special protocol. In furtherance of this undertaking the Home Secretary on May 4th introduced a Bill entitled the "Dangerous Drugs Bill," to give effect to the International Opium Convention of 1912. It contains stringent clauses forbidding, under heavy penalties, the import or export of "prepared opium" for smoking, restricting the import, export, sale or distribution of raw opium to licensed or authorised persons, and regulating the manufacture, sale, possession, and distribution of morphia, cocaine, &c. Recent disclosures in police and coroners' courts have directed attention to the range and extent of the illicit traffic in these drugs of addiction. It is not creditable to learn, as the President of the Board of Trade stated on May 17th in the House of Commons, that more than 300,000 ounces, valued at over £300,000, of British-made morphia were exported last year from this country. Sir R. HORNE's statement will be found in our Parliamentary Correspondence this week, and it must be remembered that particulars are not available of exports through the post. It is alleged that no inconsiderable portion of this drug finds its way through Canada and the States to Japan, and thence to China. It is, indeed, cynically averred that while Indian opium has been shut out of China British morphia has been going in, and Dr. WU LIEN TEH, at a medical conference at Peking recently made grave charges in this respect against certain of our manufacturers. There can be but little doubt that the world-supply of opium and morphia is grossly in excess of any conceivable legitimate use. The area under the poppy in India has, moreover, shown a remarkable rise between 1913 and 1917, as will be seen by the tabular statements circulated by the Secretary for India (see p. 1199); and though the export trade from India to China is said to have ceased, some 10,000 chests of opium were in 1918–19 exported from India, chiefly to Indo-China, Japan, Java, Siam, Hong-Kong, and Straits Settlements.

It was the object of those who drafted the Opium Convention to control at the source the fabrication of these drugs, so that, while placing no impediment upon their legitimate and beneficent medical employment, their prostitution to vicious abuse should not be fostered and maintained by an over-production which must inevitably lead to illicit consumption with its attendant social and moral degradation. It is to be hoped that the League of Nations, to whom the international carrying out of the Opium Convention has been entrusted, will lose no time in promoting legislation on lines similar to those of the Home Office Bill, by all those Powers, nearly 40 in number, which have entered into its membership. Here is a piece of humanitarian and social reform ready to hand by the promotion of which the League may well earn the gratitude of mankind.

The Prophylaxis of Shell Shock.

IT is possible that with the spate of articles, monographs, books, and reports on the question of "shell shock" during the last few years the profession may feel there is little new to be learned about it in these days, and it is, perhaps, natural some should be inclined to give the whole subject a rest. Nothing was too good for the wounded fighting man in his hospital and convalescent days, but mufti is less appealing than uniform, blue or otherwise, hence the pathetic figure standing forlorn outside a public-house, with a stringed instrument in his hands, and "Another Pensions Scandal" in large letters on a chest card, fails, apparently, to arouse even a languid interest. Possibly "shell shock" lost caste when it was shown to be little else than a banal traumatic neurosis, so facile are certain minds to be intrigued by the unusual, so prone to be bored by the commonplace; but there is a pathos of the commonplace none the less, which should rouse to action all of us for whom, in STEVENSON'S words, pity is no longer an emotion, but a motive.

Little, indeed, would be the advance made in our knowledge of the psycho-neuroses of war were it to be confined to reparation, or were the half expressed belief that Armageddon will never return to result in the dismissal of the question of possible prevention of "shell shock" from the field of practical medicine. It has not infrequently happened that fertile suggestions for the furtherance of some professional problem have emanated from the intelligent lay mind, which surveys the subject from a different angle and may be conversant with some aspect less likely to be familiar to the medical. In this connexion we wish to direct attention to the recent discussion in the House of Lords on Lord SOUTHBOROUGH'S motion for an expert inquiry into all the phenomena of "shell shock," and to the valuable expressions of opinion to which that discussion gave rise. Hitherto little or nothing has transpired in public as to the occasional occurrence of grave dereliction of military duty on the part of some of our combatants, who because of what in military law is termed desertion or cowardice paid the extreme penalty. According to Lord HORNE it was rather "in the later part of the war" that the possibility of the military crime being due to some or other form of psycho-neurosis led to the accused's coming under the surveillance of medical authorities or being detained for observation. The implicit deduction is, we fear, that there were tragedies in the earlier days on which we do not care to linger. Probably some practising neurologists saw cases here at home of officers who had been adjudged incapable of leading men or unfit for professional duties, who left the service under a cloud or were reduced to the ranks, officers who, as a fact, were suffering from what the old school called "funk," but the new, traumatic psycho-neurosis. It took time for the novel conception to filter through to the administrative strata of the military machine, and we find ourselves in agreement with Lord SOUTHBOROUGH'S contention that the disorder now called "shell shock" must have occurred in other wars, and that among its victims were many whose condition was never properly understood. We are irresistibly reminded of the civilian victims of *la grande névrose*, whose tragic deaths dotted the sixteenth and seventeenth centuries.

On the other hand, however, decision as to motives is a task to try the most expert psychologist, and if the general trend of recent opinion is that responsibility may be abrogated through mental disturbance causing the loss of control, there is danger, nevertheless, in a loose humanitarianism. The safeguards which Viscount PEEL stated were set up in the procedure of courts martial doubtless served their purpose, judging by the contrast between the figures of the condemned and of those who actually underwent the extreme penalty. But all, or at least a good part, of this painful business might be obviated in the warfare of the future were it possible in some degree to prepare the mind of the fighting man against the disasters of hysteria or other traumatic psychoneurosis. Is such a proposal feasible? Though schools innumerable at home and behind the fronts familiarised the young soldier with the conditions of actual warfare they could not reproduce the sights and sounds and smells that would subsequently bombard his sense avenues till his receptors either failed to convey more impressions, or their heightened sensitiveness resulted in overwhelming of his centres. Dr. MORTON PRINCE has suggested that confidence might be imparted by training and education, so that the soldier, forewarned as to the influence of his own fears and of external stimuli, might be in some degree forearmed. This is a matter for serious investigation. In the welter of fighting two great emotions are apt to rise into consciousness to mould conduct—hate and fear. The latter takes origin largely in the unknown, the unforeseen, the uncontrollable; when relatively stable and familiar situations are destroyed and we are projected into situations with which we are no longer familiar, we may react with fear. One aspect of the training problem, therefore, might be to accustom the recruit to the novelty of war environment, as far as such an attempt can ever be realistic; but it would be of greater significance to ascertain of what stuff he *is* made. During the war it became apparent, we think, that there were two types of nervous breakdown: some men collapsed within a period of actual fighting, measured merely by days or even hours; others "stuck it" for years ere their current of nervous energy began to ebb. Some preliminary psychological examination of the recruit might help to segregate the potential neurotics from the others, though it must be admitted that in actual fact hysteria occurred where it was least expected, while especially among the flying men the hypersensitive proved superior to the phlegmatic.

The difficulties which suggest themselves ought not to deter the authorities from obtaining a consensus of expert opinion on the pathogenesis of "shell shock" from the point of view of its subject. Even as early as December, 1914, we drew attention to the fact that traumatic hysteria was showing itself in men who admitted they were in excellent physical condition when the incidents precipitating the neurosis occurred, but nothing whatever was known of their psychical "make-up." So exhaustively has the subject been studied that we conceive all the material is at hand for a thorough examination less of the external factors than of the internal; knowledge derived from such an investigation is the essential preliminary to the elaboration of any scheme of prophylaxis. It is a task demanding the services of men of the highest eminence in this particular branch of investigation, and we should await the report of such a committee with keen interest.

Annotations.

"Ne quid nimis."

NATIONAL HEALTH INSURANCE BILL: CHANGES IN BENEFITS AND CONTRIBUTIONS.

THE National Health Insurance Bill, which has just received the Royal Assent, makes important changes in the benefits and contributions under the Health Insurance Scheme to operate from July 5th next. The object of the changes is to provide for an increase in the rates of benefits in view of the fall in the value of money. The normal rate of sickness benefit will be raised from 10*s.* to 15*s.* a week in the case of men, and from 7*s.* 6*d.* to 12*s.* a week in the case of women; disablement benefit will be raised from 5*s.* a week to 7*s.* 6*d.* for both men and women; and the amount of maternity benefit will be raised from 30*s.* to 40*s.* In order to provide for the increase of benefits the joint weekly contribution is to be increased from 7*d.* to 10*d.* in the case of men, and from 6*d.* to 9*d.* in the case of women, of which the employer's portion will normally be 5*d.* in each case. In certain cases where low wages are paid the employer will pay a larger and the worker a smaller portion of the joint contribution. The contribution cards from the week beginning July 5th next must in all cases be stamped at the rate of 10*d.* a week for men and 9*d.* for women; stamps of these values will be on sale at post-offices.

MEDICINE IN CHINA.

THE medical profession is essentially a fighting service, engaged in a continual warfare against disease. Wherever sickness or wounds are worst, there is the spot for the doctors to concentrate. The recent war provided an example of which we may well be proud. Few of us, perhaps, think of China as a point for such concentration, yet probably no country in the world presents a greater challenge to medical science or a larger field for patient labour and for original research. In the forefront of those who have sought to meet this challenge we must unhesitatingly place the missionary doctor. In proportion to the need his efforts may seem grotesquely small. We read in Dr. H. Balme's recent inquiry into the scientific efficiency of mission hospitals in China that there is still an average of only one mission hospital bed to every 26,640 people in China, and that 80 per cent. of the hospitals have only one foreign or foreign-trained doctor. Certainly there is scope enough for improvement here. But it is gratifying to know how much has been done. To many of our readers Dr. Wu Lien Teh's article (see p. 1203) will come as a surprise. The advance made in nine short years can probably not be paralleled by the experience of any other country in the world. The romantic story of the fight with pneumonic plague in Manchuria in 1911 has been told before. Not only had this far-reaching effects in checking the scourge and saving, it may be, the whole of China from invasion, but it provided an object-lesson in Western medical science that the Chinese were not slow to learn. From that beginning, with characteristic thoroughness and enthusiasm, the medical service of China was organised. What has already been accomplished is a notable page of medical history, briefly summarised in Dr. Wu Lien Teh's article. The coöperation of Chinese and foreigner in this advance has been one of its most notable features. We feel that Chinese medical men will have much to contribute to medical and surgical science in the future. They have already shown their ability in professional work, and in powers of organising for public health. Those who have had Chinese colleagues in hospital or other work will agree in giving them a high place for efficient work, sweet temper, and resourcefulness. At present, and for some time to come, however, the need would seem to us to be for more medical men and women from this country to go to China. Those who thus fare forth will find ample scope for adventure. They will be facing one of the biggest jobs in the world; and they will have an unparalleled field for enterprise and advance.

ANOMALOUS CASES OF SMALL-POX.

IN our present issue appears an interesting account by Dr. Walter Allingham of three cases of disease which in their early stages resembled chicken-pox, but which subsequently assumed many of the characteristics of small-pox. After the initial symptoms of headache and malaise the patients seem to have suffered but little inconvenience. In each instance a papular rash appeared on the third day of illness and rapidly became vesicular. The distribution of the eruption and the fact that it came out in successive crops was more suggestive of chicken-pox than small-pox. After the initial rash had been out for eight days, a second rash, quite distinct and easily differentiated from the first, made its appearance. It was petechial, deep-seated, and somewhat "shotty" in character, and had a more or less typical small-pox distribution. It may at once be admitted that the diagnosis of cases of illness such as those described by Dr. Allingham is a matter of very great difficulty involving grave anxiety to the medical man in charge of the patients, and to the medical officer of health, who has to give an opinion in such perplexing instances. In the early part of this year Dr. S. M. Copeman, one of the medical officers of the Ministry of Health, read a paper before the Epidemiological Section of the Royal Society of Medicine on an outbreak of varioloid disease of anomalous character which occurred in a limited area of Norfolk and Suffolk and had been investigated by him on behalf of the Ministry. He expressed the view that the disease in question bore a close relationship with the form of small-pox termed "alastrim," and invited discussion on the subject. The cases now described by Dr. Allingham appear to have resembled in certain respects those commented on by Dr. Copeman, and may possibly have been of a similar nature.

Considerable attention has been directed to the study of varioloid diseases in different parts of the world and outbreaks of a malady resembling small-pox, but differing from it in certain important particulars, have been investigated in Jamaica, Trinidad, South Africa, and Brazil. A number of different synonyms have been applied to this disease, such as "varioloid varicella," "amaas," "Kaffir milk-pox," "pseudo small-pox," "alastrim," &c. The question has been debated as to whether this disease, which appears to have occurred in many different parts of the world, is more closely allied to small-pox or chicken-pox, or is a new disease half-way between the two. It is claimed that alastrim, to use one of its many synonyms, differs from varicella in the following respects—namely, the vesicles become confluent in certain cases; the disease attacks adults more frequently than children; and at least partial protection against it is afforded by vaccination. The following characteristics serve to differentiate it from small-pox: The low mortality, which seldom exceeds 2 per cent.; the fact that it is less severe in children than in adults; the rash appears in successive crops, and is generally superficial in character, while the vesicles, which are of a dull whitish colour, are of different shapes and are not unbilicated; absence of secondary fever—after the initial symptoms the patients generally feel perfectly well—and absence of the characteristic smell of small-pox; the limited duration of immunity to alastrim conferred by vaccination and the fact that it is possible to successfully vaccinate the patient shortly after an attack of the disease. Most observers seem to regard the disease as an aberrant form of small-pox.

On the evidence before us we are not prepared to hazard an opinion as to whether or not the anomalous cases of varioloid disease recently met with in England were or were not alastrim. But we call attention to the fact that a disease which appears to differ in essential particulars from the ordinary small-pox met with in this country has come under observation in different districts, in the hope that, should like cases occur in future, the details may be carefully noted and recorded with a view to arriving at definite conclusions. Many departures from the normal are met with in cases of true small-pox which have been modified as a result of antecedent vaccination, and we know how difficult it is at times to differentiate such cases from chicken-pox. But if alastrim is to be accepted as a distinct clinical entity, and if it can be proved to have attacked persons resident in this country, the sooner the fact is recognised the better. In the meantime it will be well to treat all doubtful cases as small-pox, adopting the necessary measures to prevent the spread of the disease.

TREATMENT BY RADIUM.

THE report by Mr. A. E. Hayward Pinch, F.R.C.S., of the work carried out at the Radium Institute, London, during the year 1919 is much more than a record of successful achievement; it is a guide in brief to the present position of the treatment of disease by means of radio-active matter. A large part of the report is given up to the relative merits of the various forms of apparatus which have been tried, to the details of technique desirable in order to use efficiently and economically the costly materials, and to the means of protecting those who constantly work with radium from any harmful and even fatal effects. The fields in which so far radium has been most successful are indicated by the summary on the first page of the report. Out of a total of 822 cases seen for the first time during the year 22 were cured, 101 apparently cured, and 328 improved. Relief, more or less complete, was thus obtained in more than half the number of those who presented themselves. Of the 22 cures 20 come under the heading of "moles, warts, and papillomata," the remaining two being chronic ulceration and keloid. It might be more generally known that short exposures of one to one and a half hours' duration with full-strength applicators are sufficient to cause an almost reactionless exfoliation in from three to four weeks' time in nearly all cases of simple papillomata. Radium is also generally to be preferred to surgical interference in cases of keloid and vicious cicatrix. The results obtained in the treatment of cavernous nævi in infants also leave little to be desired. Mr. Pinch prudently records no cure in the case of more serious tumours, but he admits to 80 apparent cures in rodent ulcer, three in sarcoma, two each in mammary carcinoma, granuloma, and uterine fibroid, and one each in squamous-celled carcinoma of the buccal mucous membrane and of the conjunctiva and in an endothelioma. With the exception of rodent ulcer no operable cases of malignant disease are treated at the Institute, save in the few instances where operation has been positively refused; hence these results are the more remarkable. We understand that several cases have now remained well over a period of 7 or 8 years. Radium has also given excellent results in certain cases of lupus of the skin which had shown themselves refractory to Finsen light. A further useful field for radium treatment has been found in early stages of exophthalmic goitre, and as a preliminary to splenectomy in patients suffering from splenic leucocythæmia. A separate report by Mr. W. L. S. Alton, F.I.C., director of the chemico-physical laboratory, gives some idea of the labour involved in preparing the 771 tubes and applicators during the year, corresponding to an activity of 66 g. of radium bromide. Five thousand bottles of radio-active water were distributed during the same time. The research department under Dr. J. C. Mottram was only opened in May last, but two important investigations have already been communicated to the Royal Society of Medicine, one showing the leucopenia liable to develop in those long exposed to radium emanation, and the other dealing with the curious observation that certain areas of skin do not light up under ultra-violet radiation, a fact which may lead to the radiologist obtaining a clue to the susceptibility of his patient. The report should be studied as a whole by all who wish to keep in touch with the modern development of physical remedies, and will be sent on request, post free, by the secretary of the Radium Institute, 16 Riding House-street, London, W. 1.

In his report on the work of the Manchester and District Radium Institute for the same year Dr. Arthur Burrows deals in some detail with the treatment of carcinoma of the tongue, floor of the mouth, soft and hard palate, tonsils and pharynx, deploring the cursory attention which the radium treatment of these growths has received hitherto and the discouraging results obtained. Dr. Burrows has recently followed the technique devised by Dr. Viol, of New York, which consists in burying within the substance of a tumour unscreened glass emanation tubes, no effort being made to recover these tubes after their insertion. He has applied this treatment to carcinoma of the tongue and mouth. Complete disappearance of the primary growth was obtained in one or two cases, and in others the lesion was replaced by a painless indurated thickening. In some of these cases there is no record of palpable glands, a fact indicating either a very early stage of disease or a lesion of low malignity and feeble infective character. There is, as is well known, a papillated form of epithelioma of the mouth and fauces, accompanied by but little submucous invasion, and this of all forms of mouth cancer is the one which gives the most favourable results to surgical interference or radium irradiation. It cannot, however, be denied that the American technique represents a step forward in the practical application of radium therapy to carcinoma of the mouth. If to this treatment were added early and complete removal by dissection of the glands on both sides of the neck, prognosis in these cases might become much less gloomy than it now is.

EYE-GATE AND EAR-GATE.

IN his entertaining oration before the Medical Society of London, published in THE LANCET of May 15th, Sir D'Arcy Power quotes the Rev. John Ward as remarking of his contemporaries:—

> "There are seueral sorts of physicians 1st. some yt canne talke but doe nothing; 2ly some yt canne doe but not talke; 3rdly some yt canne both doe and talk; 4thly some yt canne neither doe nor talk and these get most money."

The gibe contained in the last five words is charitably regarded by Sir D'Arcy Power as a jest on Ward's part, and is not the aspect of his remarks to which we wish to draw attention here. But Ward was acute enough to base what he thus rounded off with a well-timed gibe on a close observation of human faculties to which those concerned with medical education may give heed. In his preface to the latest continental text-book on surgery[1] Professor Carl Garrè, of Bonn, divides the students who attend his clinic for teaching into two groups which require quite different handling by the teacher. The first and smaller group quickly recognises what is morbid, gets a secure mental grasp of the deviations from the normal, and readily draws analogies; its difficulties begin where theoretical knowledge and critical deduction are needed. The second and larger group, drawn largely from city high schools and seminaries, unpractised in seeing and handling, finds it no easy task to recognise the variations from normal health. Theoretical knowledge is its métier. The two types are well known to modern psychology. The visual gifted thinks in actual pictures of objects and processes; its world of conceptions is alive with form, colour, and movement. The acoustic-gifted thinks in sound and verbal images, translating into this form the written and printed word. The student in whom the former faculty preponderates assimilates with ease the practical side of surgery with all its technique, but finds himself at a loss to systematise his knowledge. His fellow-student may classify and generalise, while the objects of his conceptions remain colourless and ill-defined. Surgical teaching must clearly recognise these differences and the methods of Garrè and Borchard's text-book are consciously based upon an appreciation of them. The two mental outfits are not fixed and unalterable; it is the aim of an intelligent system of teaching to supplement the defects of either. Ability to observe correctly, appreciation of the scientific meaning of what occurs, the logic of physiological and pathological laws—in this sequence, the student will, little by little, form a complete picture of his subject. Garrè quotes with approval Ach's maxim that practical medicine is in large part not merely applied medical science but also applied psychology. The same remark was made in other words by wise and witty Russell Reynolds in an opening address at University

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[1] Lehrbuch der Chirurgie. Garrè and Borchard. 1920. Leipzig F. C. W. Vogel.

College in the year 1863. His apt characterisation of such types of medical student as David Superficialis Hurry and Cyrus Vane Velox attracted much attention at the time, and may be studied in the reprint of his address in our first issue of 1895. Of equal importance with the knowledge of physical science Reynolds held an "acquaintance with the nature and order of those processes of mind which the child or the savage may apply with instinctive correctness, but which the man of science will use but ineffectively unless he has arranged and analysed them." Subconsciously, doubtless, these principles are in the minds of all our own surgical teachers, whose results are a full justification of their methods. We do not recollect to have seen them stated so clearly as in Garrè's introductory essay, which may have more than a passing interest for the directors of our new surgical units, on whom rests the heavy burden of training the surgeons of the future.

THE RAVAGES OF MEASLES.

Dr. Doig McCrindle's latest annual report as medical officer of health for the county borough of Northampton is exceptional in that it deals with a period of four years, 1915 to 1918, instead of with the latter year alone. This is a procedure which, while it is not practicable in normal circumstances, might be expected to give a more balanced picture than that of the ordinary annual conspectus made from a narrower angle of vision. The report in question does not become thereby so markedly differentiated as might a priori have been anticipated, but this is obviously not an altogether fair test; the slowing of all public health activities, beyond the most essential, during the years of war must have masked a large part of the effect of a report such as the one here under consideration. In respect of measles, however, the advantage of the longer view is sufficiently marked. The report contains a full account of two separate grave epidemics, one occurring in the early part of 1915, the other in the latter half of 1917. Both epidemics were large ones, between 2000 and 3000 cases being notified in each outbreak in a population of 90,000. Both created records, the second being the most extensive ever recorded in Northampton, and the first having a fatality such that over three times as many deaths from measles were registered than in any year since 1898. The death-rate from measles in 1915 actually reached the figure 1·55 per 1000 of population. Dr. McCrindle draws attention to the significant fact that beyond the deaths frankly due to measles 88 deaths occurred in the first six months of 1915 among children under 5 years of age from bronchitis, pneumonia, and broncho-pneumonia; and that the deaths from these conditions diminished as the measles epidemic subsided. It seems very probable that a considerable number of the deaths in young children certified as due to respiratory diseases were in fact due to measles. It is, perhaps, not sufficiently recognised that the measles epidemic is not all above the surface, but that an unknown and probably considerable mass of infection is submerged, and none the less deadly in its effect from having been thus ignored or missed. Northampton is far from being alone in its experience of a severe type of measles during the years of war. Leeds, for example—to quote from an annual report taken at random from other 1918 reports—experienced a serious outbreak in that year. During 1918 over 400 deaths from measles were registered, and the epidemic was the most fatal ever recorded in the city. Over 6 per cent. of the cases died, while of the children under 2 years of age nearly one-fifth of those who developed the disease succumbed. The mortality after the age of 4 was comparatively light, indicating the practical importance of parents guarding their children from risk of contracting the disease during earliest childhood. It is a wholesome antidote to complacency to be reminded from time to time of the long, long trail before us before we can be sure of mastery over this scourge of childhood.

CEREBRAL SOFTENING SIMULATING LETHARGIC ENCEPHALITIS.

IN his exhaustive article (see p. 1152) on lethargic encephalitis, based upon two clinical lectures delivered at the University of Edinburgh, Dr. Edwin Bramwell deals with the protean symptomatology of the disease which may, at the outset, suggest cerebral hæmorrhage or embolism or, at the other extreme, functional disease with emotional disturbance. It is not yet sufficiently recognised that all the symptoms of lethargic encephalitis may be due to other cerebral diseases. At a recent meeting of the Société Médicale des Hôpitaux of Paris, MM. E. Baudoin and P. Lantuéjoul reported a case in which cerebral softening simulated lethargic encephalitis.

A woman, aged 57 years, was attacked on Feb. 3rd, 1920, with slight headache, and on the 4th vomited. On the 5th, when she came under observation, she responded well to questions, and said that the headache was less. Examination revealed only old hemiplegia and slight convergent strabismus of the left eye. On the 6th she was in a state of somnolence, which increased on the 7th, when she was admitted into hospital, with a temperature of 101·8°F. On the 8th she lay in a somnolent condition on her back. She answered questions correctly but with difficulty, and without raising her eyelids. It was necessary to repeat the question in a loud voice, and even to shake her in order to obtain an answer. She declared that she did not suffer and no longer had headache. The temperature was 100·7°, the pulse 76, unequal and irregular. The respiration was 20 and regular. She could not completely raise her eyelids, and they had to be forced apart in order to examine the pupils. These were unequal, the left being the smaller and not reacting to light; the right was irregular and reacted feebly. The eyeballs could be directed only to the right. There was slight rigidity of the neck, but Kernig's sign was absent. Lumbar puncture yielded clear fluid under normal tension containing 256 leucocytes to the cubic millimetre. The clot of centrifugalisation was composed almost entirely of intact polynuclears, with a few lymphocytes and red corpuscles and without microbes to direct examination. Culture-tubes of gelose and ascitic fluid remained sterile after inoculation. As there was incontinence of urine the patient was catheterised every six hours, and 750 g. of slightly albuminous urine were obtained. Death occurred on Feb. 10th. At the necropsy no meningeal lesions were found. The right cerebral hemisphere was the seat of softening, cortical and deep and almost total. The lesion was so extensive and marked that it was impossible to distinguish old from recent softening. Thus softening which came on insidiously produced the triad of symptoms of lethargic encephalitis—persistent somnolence, ocular troubles, and fever. However, the abundance of the leucocytosis and the polynucleosis of the cerebro-spinal fluid threw doubt on this diagnosis.

Babinski and other French writers have called attention to this leucocytosis as symptomatic of extensive cerebral softening. In one case the hyperalbuminous cerebro-spinal fluid contained 40 leucocytes to the cubic millimetre, with marked polynucleosis, and in another 450 leucocytes almost entirely intact polynuclears. These leucocyte reactions are abundant in the early days of the lesion, and consist at first of intact polynuclears, then of lymphocytes. They may disappear rapidly.

ANTISCORBUTIC ORANGE-JUICE POWDER.

WE have more than once pointed out how convenient it would be if the vegetable and fruit juices containing antiscorbutic substances could be reduced to a powdered form without impairing their activity. In our issue of May 22nd Surgeon-Captain P. W. Bassett-Smith described an investigation, recently carried out at Greenwich, into the antiscorbutic potency of lozenges made from lemon-juice concentrated in vacuo without heat. In guinea-pig experiments their potency was very high. According to a paper on "The Antiscorbutic Properties of Concentrated Fruit Juices," by Arthur Harden and Robert Robison, published in the April number of the *Biochemical Journal*, the drying of fruit-juice has been successfully carried still further. The technical procedure has followed the lines of milk-powder production by the spray process, which avoids a temperature likely to reduce, if not to kill, the potency of the antiscorbutic agent. From the results obtained it is reported that a highly active dried orange-juice can readily be prepared on a commercial scale which will keep after prolonged storage under suitable conditions. The orange-juice, mixed with corn syrup, was forced as a fine spray into a chamber where it met a current of air heated to 75°–80°C. The drying was almost instantaneous, and the product when tested on guinea-pigs was found to afford complete protection from scurvy. As the authors point out, the peculiar value of such a substance lies in its adaptability for infant feeding and for the use of expeditions of long duration, where fresh fruit and vegetables are unobtainable and when transport must be reduced to a minimum. It would appear that orange-juice is decidedly superior to vegetable juices in regard to keeping its activity when exposed to relatively high temperatures. In spite of this observation the investigation of the effects of storage on dried orange-juice at tropical temperatures remains to be determined. We have already drawn attention to the fact that in the preparation on the large scale of citric acid from lemon-juice by separating the acid in the form of precipitated calcium citrate the antiscorbutic material escapes unimpaired in the filtrate. Surely, it is worth while to deal with this filtrate by the method suggested herein, and so to conserve a valuable accessory food factor.

VENEROID ULCER.

Dr. George Manghill Olson,[1] assistant professor of dermatology and syphilis at the University of Minnesota Medical School, gives this name to a condition first described by Welander in 1903 and occurring in the form of ulcers about the vulva of girls or women who had not been exposed to venereal disease. Constitutional disturbance is absent, and the first symptom noted by the patient is the presence about the vulva of one or more *sores with a slight sticky discharge. The ulcers* are round or oval, with their edges raised, sharply defined, and not undermined. There are no signs of inflammation in the adjacent tissues. The lesions are rather painful and bleed readily when touched or scraped with a dull instrument. There is no discharge of serum as in the primary lesion of syphilis, and the inguinal glands, as a rule, are not enlarged. Healing takes place under indifferent treatment in about a month, leaving typical superficial round or oval scars with slightly raised edges. In spite of these differences the ulcers may resemble in their general appearance hard chancre, chancroid and moist papules of syphilis. Microscopical examination of the discharge shows a great variety of bacilli and cocci, but the causal organism has still to be discovered. The Gram-positive bacillus described by Lipschutz is probably only a saprophyte. Unlike chancroid the disease is not auto-inoculable, and no cases have been reported in which the husband has been infected. The diagnosis is made by the history of non-exposure to venereal infection which may be corroborated by the presence of a hymen, an acute onset, absence of constitutional symptoms, a characteristic depressed round or oval ulcer with no induration, and the absence of the *Spirochæta pallida*, Ducrey's bacillus, the diphtheria bacillus, and the spirochæte and fusiform bacillus of erosive vulvitis.[2]

THE POST-GRADUATE MOVEMENT IN NEW YORK.

SUPPORTERS of the post-graduate movement in Great Britain will envy the results of a campaign which has been opened in New York for the establishment and furtherance of post-graduate medical education. An Endowment Fund, started in August last, has already realised more than £100,000, and New York is already talking of a legitimate ambition "to become the medical centre of the world." It would seem that from 3000 to 5000 American physicians went abroad in the years before the war, and those responsible for the new association consider that proper provision in New York for the needs of these men will save both time and money. Honourable rivalry spurs contesting parties onwards, and the view of our Fellowship of Medicine is that London should become just such a centre as New York is now contemplating. And this view is shared by many patriotic Americans, who see that London, by geography as well as by its metropolitan position in a scattered empire, has the greater opportunity of becoming representative of world needs. But the London movement, inaugurated in a poorer country, has not yet attracted the pecuniary support which New York can claim already. Few British rich men—and we are not without them—have yet come forward to assist post-graduate medical education in this country. The Fellowship of Medicine will welcome their interest, and it seems to us that a British Endowment Fund might captivate the imagination of the wealthy. Work, more far reaching in its scope and possibilities than is generally recognised, is being carried forward by the Fellowship with quite insufficient financial support. Post-graduates are arriving in London week by week from quarters which have not previously looked upon England as a centre for medical post-graduate work. During the last few days medical graduates from Toronto, Vancouver, *Adelaide, Melbourne, Ottawa,* Madras, the Transvaal, Bagota, and Christiania have presented themselves at the offices of the Fellowship, whilst postal inquiries, we are informed, come in daily. Suggestions are to hand from France for the linking up of post-graduate work in Paris with that in London for the mutual benefit of French and British practitioners, while the movement is receiving firm American support. There is no reason to suppose that the patriotic desire of the American graduate to make New York the medical centre of the world will stop the supply of American graduates.

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[1] Archives of Dermatology and Syphilology, March, 1920.

[2] Vide THE LANCET, May 15th, p. 1079.

THE NEW RENT BILL.

THE new Rent Restriction Bill, presented to Parliament by Dr. Addison on May 20th, will have considerable practical interest for many of our readers. The text of the Bill has now been issued, and seems, on the whole, to have met with a favourable reception, except that some dissatisfaction has been expressed that no provision has been made to meet the case of premises used wholly for business purposes. Until recently the great majority of medical men resided and practised at the same address, and this aspect of the problem will affect as yet but few. The terms of the Bill amount to a revision of the Rent Restriction Act of 1915, and provide for an extension of the Amending Act of last year for a period of three years from the time the Bill becomes authorised. The general impression is that the Bill will speedily become law, and therefore its provisions claim careful study in the directions which will affect both landlord and tenant alike. Generally speaking, the broadening of the scope of the Act will be welcomed, since its provisions are to be extended to houses which in 1914 commanded a rental of £105 in the London district, of £90 in Scotland, and of £78 in England and Wales, whereas in the Act of 1919 the rentals provided for were respectively limited to £70, £60, and £52. This extension will obviously give relief to a larger circle of tenants. At the same time the promoters of the Bill have borne in mind the case of the landlord responsible for repairs. The expense of keeping a house in decent repair has vastly increased, and the result is a deplorable set-back in the condition outside and in of tenements. This fact is detrimental, of course, to both tenant and landlord; there is inconvenience, including possibly sanitary defects, to the former, and depreciation to the interests of the latter. The new Bill allows an increase of rental, provided that reasonable repairs be carried out before the permitted increase of rent. Subject to these, amongst other conditions, the landlord may increase the rent by a maximal limit of 40 per cent. To a medical man it is often highly important that he should remain in his familiar house, and the new Rent Restriction Bill, when it becomes an Act, will help him materially in this direction.

DURING his forthcoming visit to Wales the King will open the North Wales Sanatorium at Llangwyfan, near Denbigh, on July 16th, and the South Wales Sanatorium at Talgarth, Breconshire, on July 17th. Both these sanatoriums have been constructed to meet the needs of the King Edward VII. Welsh National (Tuberculosis) Memorial Association.

ROYAL PORTSMOUTH HOSPITAL.—In accordance with the recommendation of a subcommittee appointed to consider the question, the management committee has decided to retain the ticket system of admission to this hospital. The suggested alteration in the value of the tickets—that is, the issue of two instead of four for every sovereign subscribed—is still under consideration.

THE FUTURE PROVISION OF MEDICAL AND ALLIED SERVICES.[1]

AN INTERIM REPORT OF THE CONSULTATIVE COUNCIL FOR ENGLAND.

A BRIEF preface by Dr. Addison, the Minister of Health, introduces the Report of the Consultative Council of Medical and Allied Services upon the provision that should be made in the future for developing these services for the greatest public good.

Prefatory Note by the Minister of Health.

"This Report, the first to be received from the Consultative Council on Medical and Allied Services established under the Ministry of Health Act, 1919, is published in order to facilitate discussion of the questions raised in it. Action is being taken by the Ministry of Health and the local authorities in relation to a number of matters touched upon in the Report; and proposals for action in other directions are in process of formulation. Many of the Council's recommendations must necessarily be considered in relation to a comprehensive policy for the extension and development of health services (including the question of the future administration of services at present entrusted to Poor-law authorities), which will be submitted to Parliament by the Government in due course."

Terms of Reference to the Council.

In October last the following reference was made to the Consultative Council on Medical and Allied Services:—

> To consider and make recommendations as to the scheme or schemes requisite for the systematised provision of such forms of medical and allied services as should, in the opinion of the Council, be available for the inhabitants of a given area.

This document is the response of the Consultative Council who, finding that to give a detailed report on so large a reference would occupy longer time than was at its disposal, and having regard to the need for promptitude in the construction of a national health policy, has returned an Interim Report setting forth the direction of its deliberations and conclusions.

The Scope of the Interim Report.

The first section of the Report prepares us for a complete pattern of organisation designed in scope, availability, and distribution to meet the needs of the community of to day. The growing cost of medical services is noted, as well as the recognised union of preventive and curative medicine, and the increasing need of institutional treatment side by side with an increasing popularity of such treatment.

To provide for these things the scheme considers medical services as classified into: (1) those which are domiciliary as distinct from those which are institutional; and (2) those which are individual as distinct from those which are "communual," meaning those which concern a section of the population and not a sick subject. The words of the Report require no explanation:—

> 9 We begin with the home, and the services, preventive and curative, which revolve round it—viz., those of the doctor, dentist, pharmacist, nurse, midwife, and health visitor. These we style domiciliary services, and they constitute the periphery of the scheme, the remainder of which is mainly institutional in character. A Health Centre is an institution wherein are brought together various medical services, preventive and curative, so as to form one organisation. Health Centres may be either Primary or Secondary, the former denoting a more simple, and the latter a more specialised service.
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> 10 The domiciliary services of a given district would be based on a *Primary Health Centre*—an institution equipped for services of curative and preventive medicine to be conducted by the general practitioners of that district, in conjunction with an efficient nursing service and with the aid of visiting consultants and specialists. Primary Health Centres would vary in their size and complexity according to local needs, and as to their situation in town or country, but they would for the most part be staffed by the general practitioners of their district, the patients retaining the services of their own doctors.

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[1] Ministry of Health: Interim Report on the Future Provision of Medical and Allied Services. London: His Majesty's Stationery Office. 1920.

11. A group of Primary Health Centres should in turn be based on a *Secondary Health Centre.* Here cases of difficulty, or cases requiring special treatment, would be referred from Primary Centres, whether the latter were situated in the town itself or in the country round. The equipment of the Secondary Centres would be more extensive, and the medical personnel more specialised. Patients entering a Secondary Health Centre would pass from the hands of their own doctors under the care of the medical staff of that Centre. Whereas a Primary Health Centre would be mainly staffed by general practitioners, a Secondary Health Centre would be mainly staffed by consultants and specialists. It would be a consultant service in function and would be carried out by specialists or by general practitioners acting in a consulting capacity.

12. Secondary Health Centres must of necessity be situated in towns, where alone an efficient consultant service and adequate equipment could be expected, and the necessary means of communication exist. The selection of these towns will need careful consideration, and full information will be required as to the extent of existing provision of hospital and allied facilities, and of its distribution in relation to population and means of public conveyance. In rural areas the natural currents of traffic and business and existing medical facilities will usually indicate the town or towns in which a Secondary Health Centre may best be placed. In this connexion we would like to point out the importance of carrying out a "Hospital Survey" at an early date. The results of this survey would afford data for recognising the areas in which the existing provision is inadequate, and the degree of the inadequacy. The Secondary Health Centres would vary in size and elaboration according to circumstances.

13. Secondary Health Centres should in turn be brought into relation with a *Teaching Hospital* having a Medical School. This is desirable, first in the interest of the individual patient, that in difficult cases he may have the advantages of the highest skill available, and secondly in the interest of the medical men attached to the Primary and Secondary Centres, that they may have the opportunity to follow the later stages of an illness in which they have been concerned at the beginning, to make themselves acquainted with the treatment adopted, and to appreciate the needs of a patient after his return to his home. In those towns where teaching hospitals exist, Secondary Health Centres would sometimes be merged in them.

The accompanying illustration shows the scheme of services for a county area, in a diagrammatic way, and Gloucestershire, under the guidance of Dr. J. Middleton Martin, has already laid down some such pattern, which is also reproduced in the Report.

This section closes with the declaration that the dominant purpose underlying the recommendations is to secure provision of buildings and equipment, services suitably correlated and available for all, opportunity for the best work and furtherance of knowledge, coördination of preventive and curative medicine, and freedom of action for doctor and patient.

Domiciliary Service.

The second section deals with Domiciliary Service, defined as the first element in any scheme of systematised medical services, comprising the doctor, dentist, pharmacist, nurse, midwife, and health visitor. The Report runs:—

19. *Doctors.*—A doctor should be so located as to be reasonably accessible to his patients. He would attend his patients either at their homes or his surgery, and would carry out such treatment as falls within his competence; or, if in his judgment, a patient could be more advantageously treated in the Primary Health Centre, he would be able to arrange for the patient to be transferred there under his care. He would attend in childbirth in their own homes such patients as arranged with him, or, if desirable, would secure their transference to a maternity bed in a Primary Health Centre or special institution.

20. Where the assistance of a consultant or specialist was needed, and it was impossible to transfer the patient to the Primary or Secondary Health Centre, it should be possible for him to summon such assistance to the patient's home.

21. The custom whereby each general practitioner has his consulting-rooms at his own house, should, under ordinary circumstances, continue, but where, as in certain congested areas, it is impossible for a doctor to provide adequate accommodation at his own expense, it should be possible, if the public interest demanded it, for the Health Authority to provide such accommodation at the Primary Health Centre, or elsewhere, on such terms as are reasonable, and after previous consultation with a Local Medical Advisory Council. Where local conditions, and medical opinion, favoured the plan collective surgeries might with advantage be tried, either attached to a Primary Health Centre, or set up elsewhere.

22. Work in preventive medicine by the general practitioner would be carried out both in the homes of his patients and in the Primary Health Centre, and the Health Authority should be enabled to make specific payments for such work.

23. We think that in any scheme of improved medical services the duty of the general practitioner to advise how to prevent disease and to improve the conditions of life among his patients should be an important element in his work.

24. The general practitioner, if adequately trained, should play a valuable part in the work of the communal services—*e.g.*, antenatal supervision, child welfare, both before and during school age, physical culture, tuberculosis, venereal disease. He will be the first link in any chain of services to improve the conditions of industry, and to prevent any unfavourable or injurious influence upon the health of the workers.

The section further takes note of the needs of a regular pharmacy service in connexion with medical treatment at the periphery, and similarly of properly organised domiciliary nursing and midwifery.

Primary Health Centres.

The third section deals with Primary Health Centres in detail.

In the Primary Health Centres the health services and allied activities are gathered together and administered by the general practitioners of each district, the work being coördinated and supplemented by the Secondary Health Centre for the area. The Primary Health Centre has as its nucleus a district hospital, of which there are three types according to the population served. The accommodation of the projected building and its purposes are thus described, the descriptions being elucidated by plans and elevations drawn to scale.

37. *Accommodation.*—There would be wards of varying sizes, and for varying purposes, including provision for midwifery. The increasing employment of open-air treatment of illness would be provided for. Clinics would be equipped where doctors could see their patients and consult with each other. Further accommodation might include the following:—Operating room, with the necessary equipment; radiography rooms; laboratory for simple investigations; dispensary; baths, including simple hydrotherapy; equipment needed for massage, electricity, physical culture; a public mortuary; a common room which would serve as a meeting-place for the general practitioners of the district, and to store clinical records on an agreed and standardised basis.

It is designed also to aggregate at these centres a dental clinic, all the ancillary services falling under the headings of pre-natal care and child welfare, treatment of school children, physical culture, and early or preventive treatment of tuberculosis and occupational diseases.

Plans for the buildings are included in the Report, but the possibility of adapting existing Poor-law infirmaries and cottage hospitals is recognised, as are the possible inconveniences and ultimate expenses of such adaptations. It is suggested that war memorial hospitals might be constructed on the plans of the Report.

The arrangement for staffing the Centres is elaborate and ingenious. Every general practitioner is to attend his own patients requiring hospital treatment at the centre, irrespective of their status, but the practitioner's private patients will pay the Centre for accommodation and the doctor for his work. Consultant and specialist help will be available from the Secondary Health Centre, a telephone and ambulance service being an integral part of the scheme. At each centre one man will become a director of one of the special services—tuberculosis, venereal, treatment of school children, for example—having specially fitted himself for the post, and these directorships will be part-time posts paid on a time basis. This is a happy way of linking up the Primary and Secondary Centres with each other and with the teaching schools, as the part-time director of special services at the Primary Centre will have received his intensive training at the larger foci.

The section closes by describing the general practitioner's share in the scheme as follows:—

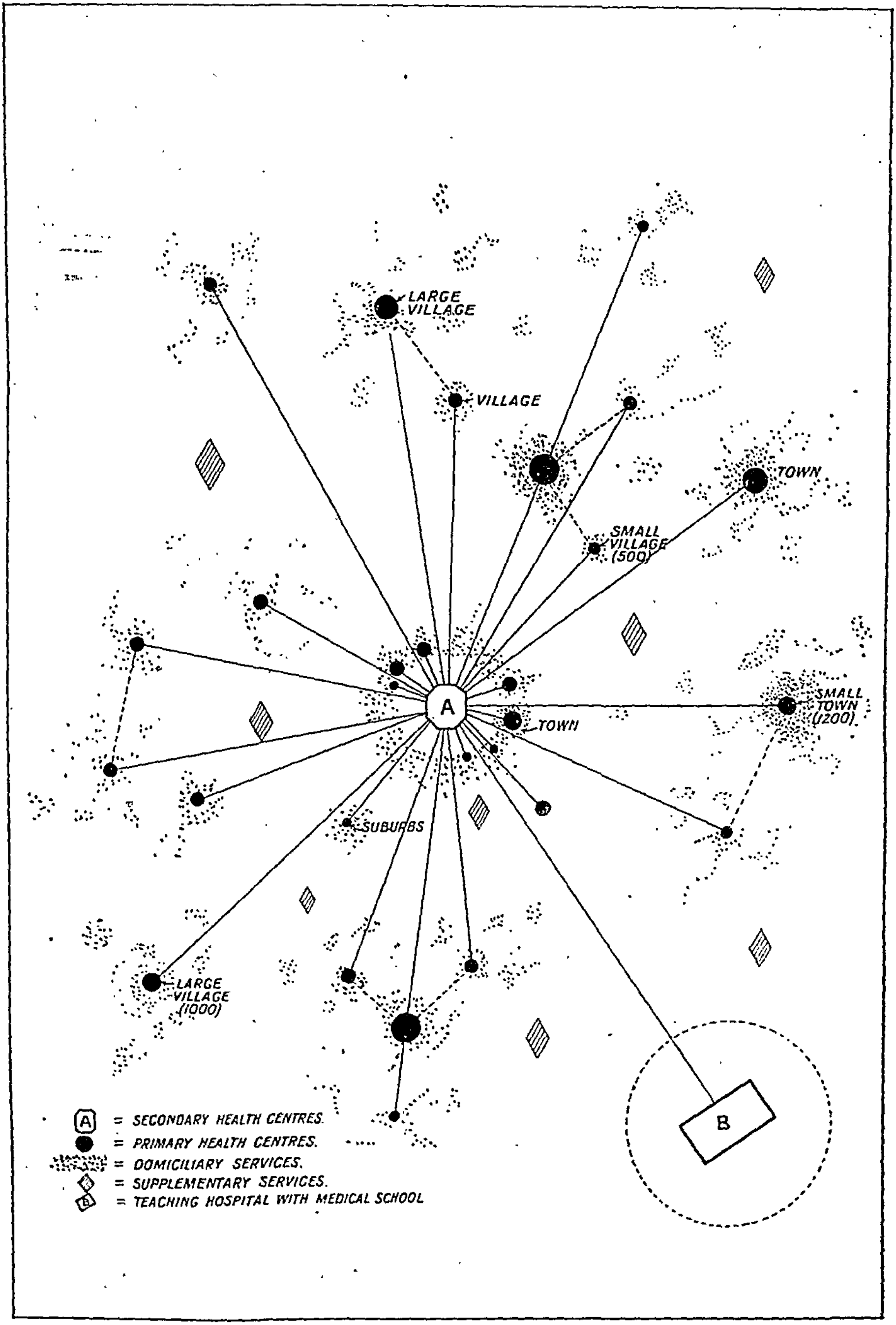
51. *Nature of the General Practitioner Service.*—It will be seen under the scheme so far outlined that the work of the general practitioner would be mainly domiciliary, but partly institutional, mainly individual but partly communal; that at the Primary Health Centre he would treat such of his patients as attended there; that at the Centre there would be provision of all needful equipment; and further, appointment as salaried director of one or more communal services would be open to him. In this way the advantages of organisation, hand-in-hand with the preservation of liberty of thought and action, would be secured.

The idea of a whole-time salaried service for all doctors was considered and rejected.

Secondary Health Centres.

The fourth section deals with Secondary Health Centres, and brings us to grips with the voluntary system for the support of hospitals, which is specially dealt with in the next section. The Secondary Health Centres are to be arranged in the large towns and the work will be mainly of a consultative type. The nucleus here is the existing general or county hospital, though additions and adaptations are contemplated. They will

DIAGRAM OF AN AREA SHOWING COÖRDINATED HEALTH SERVICES.


LARGE VILLAGE
VILLAGE
TOWN
SMALL VILLAGE (500)
A
SMALL TOWN (1200)
TOWN
SUBURBS
LARGE VILLAGE (1000)
B
A = SECONDARY HEALTH CENTRES.
● = PRIMARY HEALTH CENTRES.
= DOMICILIARY SERVICES.
◊ = SUPPLEMENTARY SERVICES.
B = TEACHING HOSPITAL WITH MEDICAL SCHOOL

receive the cases referred to them from the Primary Centres, serve as models for these, and have the following equipment:—

57. Such equipment would include:—General Services: Medical, Surgical. Special Services: Obstetric, Gynæcological, Ophthalmological, Throat and Ear, Dermatological, Orthopædic, Genito-urinary, Dental, and Industrial Hygiene. Laboratories: Pathology in all its branches. Other Services: Pharmacy, Radiology, Electrotherapy, Hydrotherapy, Radiant Heat, Physical Culture, Massage, Nursing. In existing circumstances some of these services might have to be in separated, though closely coördinated, institutions.

The Report continues:—

59. The Curative Services of Secondary Health Centres would have as their nucleus existing hospitals, for to and from these latter flow the currents of medical work, and they are part of the life of their districts. In the comprehensive organisation contemplated, the functions of existing hospitals would be considerably extended, and the present buildings would not be large enough for such purposes, and would need to be either supplemented or enlarged. In those areas in which there are modern and well-equipped Poor-law infirmaries the necessary accommodation might be partly provided by the transfer of these institutions from the guardians to the Health Authority. We strongly urge that this reform should be carried out at the earliest possible moment. If this were accomplished not only would much of the increased accommodation required be provided, but a better classification of cases would be possible. The infirmary buildings could accommodate the large number of routine cases of illness which, though neither difficult nor dangerous, is disabling and as such needs to be promptly cured so that breadwinners and mothers of families may be restored to their work. At the present time, with pressure on the beds in the hospitals, these, from an economic point of view, important cases, are necessarily postponed on account of the claims of graver and more urgent illnesses.

60. It would, however, be necessary in many areas to establish complete and model Secondary Health Centres provided with every modern requirement. The separation of the buildings which constitute a Secondary Health Centre, though sometimes in actual circumstances necessary, is a real disadvantage on grounds of both efficiency and economy, and should be regarded as a temporary expedient to be supplanted, so soon as practicable, by adequately equipped buildings grouped on the same site, thus securing collaboration and unity of control.

The personnel of the consultant services would, it is suggested, be the staffs of the hospitals, though reluctance is anticipated from some of the members. For it is suggested that consultants would be part-time paid officers, with extra fees for special work, and with scheduled duties. Eligibility to serve as consultant or specialist is to be evidenced by any or all of the following points: Special study, tenure of appointment affording special opportunities, and local professional recognition. With reference to the last, the Report says: "We contemplate that general practitioners should be eligible for these posts, and we should regard their representation in the consultant services and on the staffs of the Secondary Health Centres as an advantage."

Private or paying wards in Secondary Health Centres are to be provided, thus meeting a known need.

72. We recommend that standard charges should be made in the public wards and for other curative services, though it is possible this standard charge might vary in different parts of the country. We contemplate that such charges would more often be met by some method of insurance, though private patients recommended by their doctors would have the right to avail themselves of these services by direct payment.

73. The standard charge at the Primary and Secondary Health Centres would include residence, food, nursing, and all equipment; at the Secondary Health Centre provision would also need to be made for the payment of consultant services. It would be open to any patient to request the advice of a consultant or specialist of his own selection, the patient being responsible for the fee.

The Teaching Hospital and the Voluntary Hospital System.

The Report considers, in the fifth section, all the supplementary services and the position of teaching hospitals with medical schools. The following are the far-reaching proposals concerning the Teaching Hospitals:—

76. The Teaching Hospital would receive cases of unusual difficulty, and those requiring specialised knowledge or equipment, and in so far as is necessary, patients suitable for either primary or secondary hospitals should be freely admitted to Teaching Hospitals.

77. Similarly, the laboratories and special departments of this Teaching Hospital would be a court of reference and would inspire and lead the laboratory services of the Health Centres attached to them.

It is intended that the hospital should be the centre of post-graduate instruction, and initiate and guide collective investigation in which the staffs of the Health Centres would play their part.

The pecuniary position and needs of the voluntary hospitals are then summarised, the Report describing them thus as an essential part of the scheme:—

83. Some hospitals, which on account of their endowments have not hitherto appealed to the public, are now beginning to do so, their endowments being insufficient to meet the increased expenditure. Their entry into the field has made it still more difficult for those who have hitherto depended entirely on subscriptions.

84. We hope that the scheme we have suggested will help these institutions, since these institutions are an essential part of the scheme. They should receive grants in aid for work carried out, and we hope that those of them which are suitably equipped may receive grants in aid for carrying on research, and that those with schools attached may also be assisted in their most important work of medical education.

85. We take this opportunity of expressing our admiration of the way in which the voluntary hospitals have carried out their magnificent work, in spite of innumerable difficulties and through long years, when less interest was taken than now in the health of the poor, or in the painstaking research which has for its purpose the prevention of disease.

86. If no hospital exists in a given area it would have to be provided. If a voluntary hospital does exist its assistance would be welcomed, both in the provision of beds and equipment, and in the accumulated experience of its medical staff and management, which would be valuable to any Health Authority. The benefits they would receive under the scheme would be in proportion to the extent of their coöperation and their readiness to come into coördination with the general plan.

The Report here sets out the reasons for the existing difficulties in hospital finance, while the greatest admiration for the voluntary system is expressed, and the resolution to use the voluntary hospitals wherever available in the general scheme is registered. The need for standardised clinical records is pointed out.

Administration in Relation to the Doctor.

Under the sub-head of Administration, also in the fifth section, the need for a new type of health authority to bring about unity of local control for all health services, curative and preventive, is laid down thus:—

94. As regards the nature of this new Health Authority, there are some who favour a Statutory Committee of an existing Local Authority, whereas there are others who favour the establishment of an *ad hoc* independent body for the purpose of administering health services alone. The question which of these courses is preferable is one upon which we would rather defer any final expression of opinion.

95. Whatever may be the nature of the future Health Authority, it will be necessary to devise machinery for securing the complete intercommunication and coördination above referred to, and what we desire to emphasise here is that such intercommunication is vital to an efficient health organisation.

96. *Relation of the Medical Profession to Administration.*—In the opinion of the Council, one of the conditions of efficient service is that the medical profession as such should come into organic relation with health administration. The success of the service will depend upon the coöperation and the enthusiasm of the medical profession, and if doctors play a responsible part in the administration, the Health Authority will have the advantage of their knowledge, and the local profession will feel its reputation and interests identified with those of the service.

97. To carry this idea into effect, we recommend: (1) that the medical profession be represented as such in the future Health Authority; and (2) that a Local Medical Advisory Council be associated with each Health Authority.

98. *The Composition of the Health Authority.*—The representatives elected by popular vote should hold a majority on the Health Authority. We suggest that they should constitute three-fifths of the membership, and that the remaining two-fifths be made up of persons whose special knowledge would be of value in health questions, a majority of whom should be medical representatives nominated by the Local Medical Advisory Council. By such an arrangement, the elected representatives would hold the majority of votes, and the nominated members would contribute to the skilled knowledge necessary for successful deliberation. Methods should be provided whereby the Health Authority could obtain the advice and ascertain the collective opinions of those engaged in allied services, such as pharmacists, nurses, or midwives.

99. *Local Medical Advisory Council.*—In any areas in which there is established a Health Authority, we advise the setting up of a Local Medical Advisory Council, consisting of, say, 10 to 20 members, the number varying according to the needs of the area. This Council should be elected periodically by and from all the registered practitioners resident in the area by means of the postal vote or otherwise, and the Health Authority might be made responsible for conducting the election. The Principal Medical Officer and the two Chief Assistant Medical Officers (as defined below) should be ex-officio members of this Advisory Council.

The administrative head of the medical service of the area will be the Principal Medical Officer of the area, with two Chief Assistants, his staff being composed of a varying number of assistant medical officers and of the heads of the various special and ancillary services in the area. The local Medical Advisory Council is to have power to appoint committees for special purposes.

Details of Certain Forms of Provision

In the sixth section follows the provision to be made under the headings of a systematised scheme for (*a*) Laboratory Services; (*b*) Dental Services; (*c*) Maternity and Child Welfare Services; (*d*) Physical Culture; and (*e*) Recuperative Centres. The Laboratory Services at the primary centres will give facilities to the general practitioner, while the staffing will be in the hands of the director of the laboratory at the secondary centre, with which it will be in communication by telephone. It is further suggested that the laboratories, both at the primary and the secondary centres, should be linked up with a special laboratory at each University centre.

The Report closes with a full recognition of the value of physical culture and remedial physical treatment and of recuperative centres, to be used either for restorative or preventive purposes.

Summary of Recommendations.

In the seventh section there is given a summary of the effect of the various recommendations as to the elements which should, in the view of the Council, be included in schemes for the systematised provision of medical and allied services for the inhabitants of a given area. The summary is to be understood, not as governing or placing an interpretation upon the fuller paragraphs of the Report, but only as drawing attention in a conveniently brief form to the main conclusions. It is recommended that schemes should include provision for the following services and personnel:—

Services and Personnel.

A.—*Domiciliary* (pars. 18 to 35) (including both curative and preventive work). Personnel: Doctors, pharmacists, nurses, midwives, health visitors and other officers of the health authority.

B.—*Primary Health Centres* (pars. 36 to 52), including medical, surgical, and maternity beds; out-patient clinics, dental clinics; accommodation for equipment needed for treatment and investigation, accommodation for the work of communal services, accommodation for workers in ancillary services, ambulance service. Personnel: General practitioners, visiting consultants and specialists, officers engaged in communal services, visiting dental surgeons, workers in ancillary services.

C.—*Secondary Health Centres* (pars. 53 to 73), including facilities for curative services in cases requiring highly specialised diagnosis or treatment, accommodation for the work of communal services, dental clinics, accommodation for workers in ancillary services, ambulance service. Personnel: Consultants and specialists, officers engaged in communal services, dental surgeons, workers in ancillary services.

D.—*Supplementary Services* (para. 74), including provision for facilities for specialised treatment of such conditions as tuberculosis, mental disease, &c. Personnel: Specialists in the appropriate forms of treatment, workers in ancillary services.

E.—*Teaching Hospitals with Medical Schools* (pars. 75 to 80), including facilities for treatment of cases of unusual difficulty, facilities for research, facilities for post-graduate study (including training for communal services). Personnel: Consultant, teaching, and research work, workers in ancillary services.

A closing paragraph repeats the need for the encouragement of research and the operation of a system of standardised clinical records. The chairman of the Council, Lord Dawson of Penn, and the vice-chairman, Colonel C. J. Bond, have been authorised to sign the Report on behalf of the Council.

Consultative Council on Medical and Allied Services.

The following is the list of members of the Council: The Right Hon. Lord Dawson, G.C.V.O., K.C.M.G., C.B., M.D., F.R.C.P. (*Chairman*), C. J. Bond, C.M.G., F.R.C.S. (*Vice-Chairman*), N. G. Bennett, M.B., B.Ch., L.D.S. Eng.; R. A. Bolam, O.B.E., M.D., M.R.C.P.; Victor Bonney, F.R.C.S.; H. G. Dain, M.B., M.R.C.S.; A. Fulton, M.B.; Sir William S. Glyn-Jones, T. A. Goodfellow, C.B.E., M.D., M.R.C.S.; G. E. Haslip, M.D., M.R.C.S.; T. Eustace Hill, O.B.E., M.B., B.Sc.; F. G. Hopkins, D.Sc., F.R.S.; Miss M. H. F. Ivens, M.B., M.S.; Miss Janet E. Lane-Claypon, M.D., D.Sc.; A. Linnell, M.R.C.S.; J. A. Macdonald, LL.D., M.D.; E. W. Morris, C.B.E.; John Robertson, C.M.G., O.B.E., M.D.; T. W. Shore, M.D., M.R.C.S.; Sir William A. Tilden, D.Sc., F.R.S.

THE FIRST REPORT OF THE WELSH CONSULTATIVE COUNCIL.

THE Welsh Consultative Council is a composite body, comprising not only representatives of the Medical Profession, but also of National Insurance, and of Local Health Administration. Under the chairmanship of Sir Edgar Jones, it has with commendable rapidity presented its first Report, which sets forth how systematised provision may be made for improving and maintaining the health of the Principality.

The object is to ensure that sufficient and efficient medical and nursing services of all kinds are available to the community. The plan proposed is to divide the country into medical areas, each with a main medical centre. For instance, in the south Cardiff would form one medical centre and Swansea another. Each area would then be subdivided into districts according to convenience of geographical position and transit facilities. Each district would have an institute, which would act as (1) a general medical and surgical hospital for in- and out-patient work; (2) a centre for maternity and infant welfare, school, tuberculosis, dental, venereal, and other clinics; (3) a medical institute with laboratory, library, record and research department, and facilities for scientific meetings; (4) a centre from which nursing services, health visiting, and home helps would be directed; (5) a base for systematised motor ambulance service; and (6) a centre for public health administration; in addition, out-station clinics would be needed. The clinical work of the institute would be conducted by the medical practitioners of the district (suitably remunerated for their services), who would contribute to the institute and obtain from it regular information as to the health of the district. Unusual and difficult cases would be either transferred to the main medical centre, or a consultant from there would be called up to the institute. Secondary institutes on a smaller scale would be required in certain districts, modified to meet local needs. These would be based on the main institute of the district, just as this in its turn would be based on the medical centre for the area. General hospitals, Poor-law infirmaries, and cottage hospitals already in existence could be utilised and coordinated forthwith. Asylums, fever hospitals, convalescent homes, and the like would be linked up with this scheme of the medical service. The way in which the scheme would apply in three typical areas is set forth in the Report; the Aberdare Valley is taken to represent an industrial and urban district; East Carmarthenshire, including Llanelly and the valley up to Ammanford, represents a combined industrial and rural district; and the County of Merioneth a purely rural district. Due weight is given in the Report to the need for after-care treatment and for holiday homes for the tired whose condition is not yet pathological. Open-air schools are advocated for healthy children as well as for defective; fortunately they have the advantage of being cheap to construct. The need for pit-head baths and washing facilities for factories is emphasised. Standards are suggested as to the personnel required. One qualified dentist is held to be needed for every 4000 population; one doctor for every 400 homes in urban communities or 300 homes in rural; one health visitor per 1000 houses in populous centres, and one per 500 to 750 houses in less populous districts. Clearly this personnel is not available to-day, but the Report supplies a standard to be aimed at. The claims already put forward by Cardiff are that many of the proposals are only what have for some years been in operation in that city, and from Merthyr that very little modification of existing medical services would be needed to bring them into accord with the suggestions in the Report, indicate that the plan put forward is essentially practical. It makes use of all available medical service, coordinates it into a workable organisation, and indicates where addition to the service would be needed.

The Report brings out clearly two points: (*a*) there is an entire lack of organisation in medical service to-day; and (*b*) the personnel and institutions already in existence, if properly organised, would go far to meet the needs of an efficient service. Organisation of personnel and institutions already in existence is not an expensive matter, and this part of the programme could be put into operation forthwith.

SUBSEQUENT to a meeting of the Faculty of Medicine on May 22nd the Vice-Chancellor of the University of Brussels presented the medal of honour of the University to Lord Dawson, Sir Leslie Mackenzie, and Sir William R. Smith in recognition of their services to preventive medicine.

TUBERCULOSIS.

Administrative Control of Tuberculosis.

THE Parliamentary reports already published in THE LANCET concerning Dr. Addison's scheme for the reorganisation of the tuberculosis campaign may be supplemented by the following notes. Speaking in the House of Commons on the National Health Insurance Bill he pointed out that the administration of sanatorium benefit was to be transferred from the insurance committees to local health authorities, the object of the Bill being mainly to provide for an increase in the rate of benefits under the National Health Insurance Act, in view of the fall in the value of money. He argued that this transfer would imply more efficient administration, and that it had become obvious that much of the expenditure hitherto incurred in connexion with sanatorium treatment had been wasted. It was clear, in his opinion, that it was impossible to deal with this matter unless it was undertaken by one authority competent to deal with every aspect of it. He promised, however, that there should be an opportunity for coöpting members of insurance committees, who had special experience of tuberculosis, on the new authority set up. When the clause came up for discussion at the Committee stage, it was evident that the House of Commons agreed with Dr. Addison in regard to the transfer.

Tuberculosis Settlements in Scotland.

In a circular, dated April 30th, the Scottish Board of Health reminds local authorities of the recommendations of the Inter-Departmental Committee's Report of August, 1919, on the treatment of tuberculosis. The object of this reminder is to draw the attention of the Scottish local authorities to the possible establishment of one or more village settlements in Scotland, and to intimate that at an early date a conference for the free discussion of suggestions as to action will be arranged. The Board invites definite views on the subject.

King Edward Memorial Association.

For the first time since the establishment of the King Edward Memorial Association the council of that body met at Carnarvon on April 23rd, under the presidency of Major David Davies, M.P. He announced that at last every county in Wales had joined in the anti-tuberculosis campaign—one of the few national campaigns in Wales. Referring to grants made to the Association, he noted that in Wales £56 and £79 were allotted to hospitals and sanatoriums respectively per bed, whereas in England a substantially higher grant was made. The reason at first given for this disparity was that Wales had many more beds than England. The Chancellor of the Exchequer had recently been interviewed on this matter, and though complete equality between Wales and England had not been conceded, the Government had decided to make an immediate payment to the Association of about £70,000 in respect of money already spent on hospitals and sanatoriums. The announcement was also made that under the provisions of the new National Health Insurance Bill the Association would be deprived of about £25,000 which it had hitherto received from insurance committees in respect of sanatorium benefit. It was not clear how this sum was to be replaced. A report was also submitted by the Research Advisory Committee on the extension of the research branch. The importance of this branch was emphasised, and the hope expressed that a research department would be set up in connexion with the medical school at Cardiff.

Increase or Decrease of Tuberculosis during the War.

Conflicting statements as to the increase or decrease of tuberculosis during the war are still being made, as shown by the following. At a recent meeting of the Essex Insurance Committee the Sanatorium Benefit Subcommittee called attention to the gradual and steady increase in the number of applications for sanatorium benefit from insured persons suffering from tuberculosis. For the first quarter of each of the following years, 1916, 1917, 1918, 1919, and 1920, the applications numbered 96, 122, 166, 190, and 213 respectively. Thus, in 1920, the applications were more than twice as numerous as in 1916. Again, the Countess Ferrers, speaking at a recent meeting of the National Association for the Prevention of Tuberculosis at Finsbury-circus, said that there had been a tremendous and alarming increase of tuberculosis since the war, although before the war the figures were steadily decreasing. Many similar references might be given to alarmist statements made by public speakers, some of whom quoted figures in support of their views. On the other hand, in the *British Medical Journal* for April 24th Sir Robert Philip has drawn attention to the Registrar-General's figures for Scotland. These show that the mortality from all forms of tuberculosis has exhibited a notable fall since the outbreak of the war up to the end of 1919. In 1913 the mortality from all forms of tuberculosis was 170 per 100,000 and 108 from pulmonary tuberculosis. The corresponding figures for 1919 were 129 and 88. It is particularly to be noted that during 1919 there has been a phenomenal drop in both categories—namely, from 158 for all forms of tuberculosis in 1918 to 129 in 1919. The drop in the mortality from pulmonary tuberculosis in the same period was from 107 to 88. Sir Robert Philip draws attention to a similar remarkable drop during the past year in New York State.

Is Sanatorium Benefit Permanent Benefit?

The great improvement in health experienced by the large majority of early cases, and also by a considerable proportion of slightly advanced cases who already have tubercle bacilli present in the sputum, as long as they reside at a well-conducted sanatorium, is well known to all who have had sanatorium experience. Those who can continue to live at a sanatorium as members of the professional or working staff can usually count on continued health and no return of active tuberculosis. Those also in good circumstances, or whose occupation allows them, and who do continue to live an open-air life, with comparatively light employment, have a similar prospect of good health and freedom from disease. Unfortunately, such conditions are not possible for the great majority of those who are granted sanatorium benefit. Dr. D. M. Taylor, tuberculosis officer of Halifax, has recently repeated the oft-told tale of how steadily those discharged from the sanatorium go down-hill.[1] Dr. Taylor attempted to trace the after-history of 85 persons who received sanatorium benefit in 1914. On Dec. 31st, 1919, he found that only 15 were known to be alive, 49 were dead, and 31 could not be traced. Of the 64 traced cases 8 were early and 24 moderately advanced. Six of the early cases and only 6 of the moderately advanced were found to be alive. It is difficult not to conclude that as regards four-fifths of the "benefited" the money spent on sanatorium benefit was for the most part wasted. Dr. Taylor is of opinion that by means of improved diagnosis more early cases must be found, and better after-care provided, assisted by a more sympathetic attitude of employers. He remarks on the futility of advising light out-door work, and rightly states that the ordinary work of the returned case is better than idleness. Large employers could do something in adjusting the work to the man's capacity. A great deal has been done in this way in Woolwich Arsenal for many years with considerable benefit to the returned cases.

Especially since the war the best economic use of sanatoriums has not been made. Personal and sentimental reasons too often sway even tuberculosis officers, and cases are sent to the sanatorium who should be isolated at home or sent to a home for the dying. More than one authority on sanatorium treatment has recommended that in the first place all patients should be admitted for one month only. They should not remain longer unless the medical superintendent reports that they are likely to derive permanent benefit from prolonged treatment. The one month's stay would enable the patient to learn the principles of open air treatment and how to avoid infecting others when he returned home If this recommendation were generally carried out we should get very much better economic results from sanatorium treatment

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[1] See the After-Histories of Insured Persons granted Sanatorium Benefit during 1914, with a Critical Review of the Facts, The Medical Officer, April 24th.

Reports and Journals

The fifth annual report of the Reading Tuberculosis Dispensary Care Association includes an appreciation of the valuable work done by Dr C C Chidell, who acted as temporary medical officer to the Association during the war The report gives details of the various activities of the Association, one of which has been the organisation of a small class for the education of children unfit for ordinary school attendance The class was much appreciated, and marked improvement was shown by those of the children who attended regularly It is greatly to be deplored that the resignation of the teacher responsible for this class has led to its temporary dissolution Recognising the importance of special educational facilities for weakly children, the association has forwarded a resolution to the Education Committee, urging them to provide a residential open air school

In a recent number of the *Medical Record* Dr Stephen J Maher raises the question What has the war taught us of tuberculosis? His answer shows considerable pessimism The war, he believes has made clearer to us the poverty of our equipment for fighting the tubercle bacillus Comparisons, sometimes invidious, between the insufficiencies in equipment of states and countries have inevitably been made Many hundreds of young doctors have learnt the proper use of percussion, auscultation, and the X rays The war has emphasised the need of hospital and sanatorium care for consumptives, and the effectiveness of good nursing and of health propaganda But beyond—nothing The writer maintains that large medical military organisations are not capable of advancing our knowledge of tuberculosis, and that in the future, as in the past, we must put our dependence for results on enthusiastic clinicians and laboratory workers

In the *Wiener medizinische Wochenschrift* for April 29th a report is published of a meeting on Feb 29th of the Gesellschaft für Tuberkuloseforschung The main discussion seems to have centred about Friedmann's turtle vaccine Dr Kollmann and Dr Paltauf demonstrated microscopic sections taken from the skin and subcutaneous tissues in the neighbourhood of an infiltration provoked by an injection of the vaccine in a case of pulmonary tuberculosis Numerous intracellular acid fast bacilli were found in the needle track It did not appear that the injection had been followed by a multiplication of the acid fast bacilli introduced Dr M Weiss had given about 30 injections of Friedmann's vaccine, but had only once seen suppuration follow, and in this case the favourable effect of the injection was not impaired by this complication He rejected the suggestion that tubercle bacilli of the human type were to be found in Friedmann's cultures

CANADA

(FROM OUR OWN CORRESPONDENT)

Canadian Medical Association Annual Meeting

THE fifty first annual meeting of the Canadian Medical Association will be held in Vancouver, B C , from June 22nd to 25th next The president elect is Dr R E McKechnie, Vancouver, who had been elected to the presidency in 1914 when the annual meeting, which was announced to take place at Vancouver, was cancelled owing to the outbreak of the war Dr J W Scane, Montreal, is the acting general secretary, and Dr W A Clarke, Vancouver the local secretary The address in medicine is to be delivered by Dr Charles Lyman Greene, St.Paul, Minn , U S A , the address in surgery by Lieutenant Colonel F Mewburn, Calgary, Alberta, the address in genito urinary surgery by Dr H H Young, Baltimore, Md , U S A At the same time as this meeting there is also to be held in Vancouver the annual meeting of the Canadian Public Health Association, the annual meeting of the Canadian Association for the Prevention of Tuberculosis, the Canadian Committee on Mental Hygiene, the National Committee for Combating Venereal Diseases, and the British Columbia Hospital Association Many prominent medical men are expected at these meetings, not only from Canada but from Great Britain and the United States

Canadian National Council for Combating Venereal Diseases

The first municipal committee of the Canadian National Council for Combating Venereal Diseases was organised in Toronto late in March The meeting was presided over by Mr Justice William Renwick Riddell, and the following officers elected for the Toronto Municipal Committee —Honorary president Mr Justice Frank Hodgins President Dr Frederick W Marlow Secretary Dr Gordon Bates, Toronto The formation of the Toronto committee was coincident with the showing of "The End of the Road, a film drama now being exhibited throughout Canada by the National Council During the five days this "movie was on exhibition in Toronto, some seventeen thousand people attended the meetings, at which public addresses were delivered by prominent speakers engaged by the National Council The general scheme was outlined in which the Dominion and Provincial Governments are combining to deal with the venereal diseases problem in Canada At first the National Council will do general educational work, so that people generally may become aware of the seriousness of the problem, after which the Government treatment schemes are to be conducted in various parts of the Dominion of Canada Local committees are now being formed in many parts of Canada When the National Council has become better organised further educational and social aspects of the venereal diseases problem and treatment-schemes will be considered by the provincial governments

Nutritional Clinics in Toronto

Upon investigation of homes of patients attending the Malnutrition Clinics of the Hospital for Sick Children, Toronto, nurses of the Department of Health have found that the smallest income of the families employing these clinics is $17 50 and the largest $25 00 weekly, whilst the numbers in these families range from four to eight In several of these families there are two or three children attending the clinics, all from 10 per cent to 25 per cent under weight for height Difficulty is found in increasing the milk supply owing to the inadequate income, but it has been common to find families spending their incomes on improper food, defective nourishment being often due to want of knowledge rather than to inadequate income As evidence of the value of the organised activities of a Department of Health, the infant mortality for the five years preceding the present regime or 1904 to 1909 inclusive, was 161 per 1000 births, the infant mortality for the next five years was 140, and in the last five years has dropped to 102 while in 1919 it was only 95

Medical Clinic at Kingston, Ontario

The Kingston Clinical Association Ltd , has been incorporated with a share capital of $100 000 The object of this association is to conduct clinics of a medical character which will supply a standardised systematic examination Specialists in each branch of medicine will be in charge and all modern science equipment will be used This clinic will have the effect of making Kingston, the home of Queen's University and Medical College, a more important medical centre, and may prove a reply to the suggestion that the medical department of Queen's University should move to Ottawa

Physio therapeutic Work in Military Hospitals in Canada

The general plan and scope of the work on physiotherapeutics in the various military hospitals throughout Canada is contained in a report just issued by the Director General of Medical Services for the Dominion of Canada The Canadian Army Medical Corps took over this work from the Canadian Military Hospitals Commission on April 1st, 1918, under which commission undischarged invalided soldiers were being treated in various centres in Canada. At once a systematised scheme for hospital centres in the various military districts throughout Canada was adopted. Provision was made for building accommodation, and as well for a general plan of treatment of the invalided soldier by physio-therapeutic methods either preceding or following surgical operation. Prior to taking over this work the Canadian Army Medical Corps had a report of the methods adopted and apparatus designed and used in the special hospital at Ramsgate, England. The general scheme for treatment departments is based on that which had been found so successful in special hospitals in England. Under this scheme all large hospitals in Canada were divided into active treatment sections, where the actual surgical operative work was performed, and convalescent sections to which the patient was removed after immediate recovery from the operation, and of which these treatment departments formed a part. At least 50 per cent. of all hospital populations required and received some kind of psycho-therapeutic treatment; in special hospitals, such as the Dominion Orthopædic Centre at Toronto, the percentage has been very much higher. To show the amount of work here performed, a return for one recent month may be submitted. In St. Andrew's Military Hospital, Toronto, with a total of 16,095 treatments, they were divided as follows: Massage, 4082; electro-therapy, 1707; radiant heat and diathermy, 454; hydro-therapy, 7350; muscle function training, 676; gymnasium (all classes), 1826. In other institutions in the same recent months the amount of work can be gauged by the figures: Dominion Orthopædic Hospital, Toronto, a total of 11,507 treatments; Manitoba Military Hospital, Winnipeg, 11,399; Camp Hill Military Hospital, Halifax, N.S., 4630; St. Anne de Bellevue Military Hospital, Quebec, 23,265. Summarised: The end of the war has found the C.A.M.C. with the following organisation: A special section in every hospital, particularly devoted to physio-therapeutics, subdivided into active treatment and gymnasium work, working in the closest harmony with the surgical and medical staff.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Official Inquiry into Encephalitis Lethargica in France.

MM. Léon Bernard and Jules Renaut have brought before the Academy of Medicine the results of the epidemiological inquiry of the Ministry of Hygiene into encephalitis lethargica in France. From the 55 departments which have sent a reply 464 cases in all have been reported. The disease seems to attack adults twice as often as children, and people over 60 are only exceptionally affected. Its gravity is undoubted, since the mortality indicated in the reports is at least 30 per cent.; it may be, however, that many mild cases have escaped notice and possibly treatment. Nowhere has the epidemic been very concentrated, it has been sparsely distributed over the country. The cases are so isolated from one another in towns or in the country that most medical men will not admit the possibility of contagion, others suggest that the disease may be propagated, like cerebro-spinal fever, by means of healthy carriers, and of convalescents; in no case has direct contagion been observed. The reports are unanimous in discounting any relation between anterior poliomyelitis and encephalitis lethargica; on the other hand, in nine-tenths of the cases, the doctors point out the coincidence of cases of influenza and of encephalitis lethargica, and emphasise the possibility of a close connexion between these two maladies. It is, at any rate, interesting to note the present decline of the epidemic—70 cases in January, 206 in February, 144 in March, and 44 only in April.

Pseudo-tuberculosis.

Dr. Sergent, of the Hôpital de la Charité à Paris, who since 1914 has examined more than 30,000 soldiers for tubercle, has communicated to the Academy of Medicine an elaborate paper summarising his own careful observations. It emerges therefrom that medical men often regard as signs of early tubercle certain conditions which happily indicate only an impairment of function of the apices, easily curable if precautions are taken, but favourable to the subsequent development of tuberculosis if the subject is placed under bad conditions. Several of the reported cures of tuberculosis doubtless belonged to this category. The facts are of great interest from the recruiting point of view, since it is unnecessary to discard, discharge, or to pension those likely to be cured. The assumption of a probable cure is legitimate when respiratory troubles are limited to the apices. Among these subjects—all adults—there are included many with deformed chests, with adenoids past or present, with narrowed nasal passages, or very often diaphragmatic insufficiency. Radiography shows only deficient air entry in the apical region. Before deciding that these men are victims of early tuberculosis other diagnostic measures should be used, especially as they are often puny, starved-looking, and of light weight. Besides, the bilateral nature of the signs should be noticed, since apical tuberculosis is nearly always unilateral. Confusion should be possible only in the case of a double apical infection, and this usually presents other signs elsewhere.

May 22nd.

BUDAPEST.

(FROM OUR OWN CORRESPONDENT.)

On the Social Care and Treatment of Epileptics.

AT a recent meeting of the "Children's Protecting Union" Dr. Frey, professor of nervous diseases, gave a short talk on the care and treatment of epileptics. Among other things, he said that society is wholly responsible for the conditions which are the causes of epilepsy, and it is the duty of society at large to contribute to the care of these unfortunates, who are the victims of conditions created by society. More than 85 per cent. of epileptics are hereditary sufferers, and alcoholism of the parents is responsible for the great majority. It has been said that not less than one of every three children of alcoholic parents suffers from epilepsy. Colonisation of sufferers is the only way in which epileptics can be cared for properly. Dr. Frey said that in most institutions they were thrown with the insane, a condition unfair to both classes of patients. The majority of physicians are willing to admit that purely medical or surgical treatment is of little or no value except in extremely isolated cases. More has been accomplished by a hygienic mode of living, strict regulations of the habits of life, and particularly by suitable, interesting employment and surroundings.

Filth in Country Dairies.

Some shocking conditions have been discovered by Board of Health inspectors in dairies that supply Czernowitz, a city of 200,000 population. In some adjacent villages they have found buildings too filthy for the habitation of cows used for dairy purposes. Wooden floors, rotted with the milk drippings of years, over dank, foul cellars; floors of ill-fitting stone slabs laid on the earth; ancient wooden cooling tanks saturated with filth; open wooden drains and contaminated wells, are among the evils reported after inspection of a hundred small dairies. However, these dairies form only a small percentage of those that send milk to the city. The assistant inspector reported that some of the dairies are excellent in condition, and not a few are as perfect as care and science can make them. The bad cases discovered are worse than anything recently recorded, but they are isolated instances and will be improved or closed up.

Milk and Scarlet Fever.

In a recent report Dr. Popovici, medical officer of health for a large county, traced the origin of a recent spring outbreak of 71 cases of scarlet fever apparently to infected milk. The dairy farm immediately implicated was in good order, but the dairyman had supplemented his own milk by a purchase from a purveyor who obtained his supply from 15 different sources A child of a man employed in milking at one of these was found in a condition pointing to convalescence from scarlet fever Another man's wife was found to have her hands and feet in a state of desquamation Both these persons had been visiting friends in an adjacent town in which scarlet fever was prevalent After the supply of milk from this dairy was stopped no further case of scarlet fever attributable to the dairyman's milk occurred

Malnutrition in Children

In Debretzin Dr Kenezi gave an address on this subject before the Society for the Protection of Children The first cause of the malnutrition of children was, he said, parental ignorance The healthy conditions with which the present parents had been surrounded during childhood had been forgotten by them Breast milk was being superseded by condensed milk and patent foods In many cases this was to be attributed to the fact that during the war thousands of women had to earn their livelihood, and occupied male positions which they retained even at present on account of the exorbitant prices prevailing Though both husbands and wives were in employment they could not secure sufficient income for maintaining their families He said that education was begun too early, and higher education was being overdone, the great social demands made on mothers were taking them away from their children The second cause was found in disease of the children Adenoids and tonsils were familiar examples Disease of the parents was the third cause This was most often lues, an old chancre in the father sometimes expressing itself in the child, as malnutrition without other symptoms If other treatment was tried without result lues should always be suspected, and mercurials and iodides, even neosalvarsan (all borne well by children) should be ordered In general treatment, good sleeping rooms, plenty of fresh air, suitable bed clothing, medium underclothing, plenty of exercise, and a warm bath once a day, should be provided School should not be begun until the seventh year A daily nap should be taken and the child should sleep from 8 P M to 7 30 A M Food should be high in proteids and poor in carbohydrates, and the stomach should be carefully treated Iron, quinine, and cod liver oil were important drugs Malnutrition should always be eliminated, if possible, in the diagnosis of obscure cases

Nagyvárad Transylvania

The Services.

ROYAL NAVAL MEDICAL SERVICE

Surg Cmdr R H J Browne is placed on retired list with rank of Surgeon Captain

ROYAL ARMY MEDICAL CORPS

Majors relinquishing the acting rank of Lieutenant Colonel T S Coates (Brevet Lieutenant Colonel), N E Dunkerton, H V Bagshawe (Brevet Lieutenant Colonel)

Major C P Thomson retires, receiving a gratuity

Temporary Captains relinquishing the acting rank of Major R Millar, H T L Roberts A H Macklin W Gemmill

Capts H J Bower and G Jackson resign their commissions

R W D Hewson, late temporary Captain to be temporary Captain

W H Johnston from Unattached List T F to be temporary Lieutenant

Officers relinquishing their commissions —Temp Capt W J J Arnold (granted the rank of Major) Temporary Captains retaining the rank of Captain N A A Hughes D H A Galbraith W A Coats H F N Scott, H G Watters, and W Parry and G L Venning on ceasing to be employed as Dental Surgeons Temp Hon Capt J F Cooper (retains the honorary rank of Captain)

GENERAL RESERVE OF OFFICERS

H J Bower, late Captain, R A M C to be Captain

SPECIAL RESERVE OF OFFICERS

Capts (acting Lieut Cols) T S Allan and J Tait relinquish the acting rank of Lieutenant Colonel on ceasing to be specially employed

Capt A G Hebblethwaite resigns his commission and is granted the rank of Lieutenant Colonel

Major P M Dewar, T D resigns his commission and retains the rank of Major, with permission to wear the prescribed uniform

Captains resigning their commission and retaining the rank of Captain C L Meynell W H Armistead, A E Campbell, J Dundas, S Havelock, H N Pelly, A E Huxtable

Capt F B Julian, late temporary Captain R A M C, to be Captain

3rd London General Hospital Major Sir A W Mayo Robson resigns his commission and is granted the rank of Colonel

4th Northern General Hospital Capt F E Withers resigns his commission and is granted the rank of Major

TERRITORIAL FORCE RESERVE

Capts C Killick and J A Watt resign their commissions and retain the rank of Captain

ROYAL AIR FORCE

Medical Branch —Flying Officer J Fanning to be Flight Lieutenant

Capts E T D Fletcher, G C Hall V I Levy W A Pocock are transferred to the unemployed list

Dental Branch —Capt J Speak is transferred to the unemployed list

INDIA AND THE INDIAN MEDICAL SERVICE

Home Department Majors E A Walker and W S Nealor revert to their military duty Major R E Lloyd, officiating chemical examiner to the Government of Bengal and professor of chemistry Medical College, Calcutta is appointed until further orders and in addition to his own duties Resident Medical Officer, Medical College Hospital The Viceroy has made the following appointments of British Service officers to his staff —To be Honorary Surgeons Col C W Profeit, Col H P W Barrow, Bt Col H R Blackwell and Bt Col H B Fawcus Capt P B Mills, civil surgeon Ghazipur is appointed Superintendent of the Prison Fatehgarh and Captain L A P Anderson is appointed to hold Civil Medical Charge of the Allahabad district during the absence on leave of Lieut Col R G Turner Lieut Col D W Sutherland is appointed Honorary Surgeon to the Viceroy Major F W Sumner is appointed Civil Surgeon, Cawnpore Major C H Barber professor of medicine King George s Medical College Lucknow is transferred to Aligarh Lieut Col A W R Cochrane is transferred from Meerut to Agra as Civil Surgeon Major J S O'Neil is to hold charge of the civil surgery of Meerut, vice Lieut Col A W R Cochrane transferred Lieut Col E J O Meara civil surgeon and principal Medical School Agra is granted one year s leave Lieut F W Mathews on reserve duty, Allahabad, to be Superintendent Central Prison Naini, Allahabad vice Major C E Palmer, granted leave Lieut Col W Young, civil surgeon Lucknow to be Professor of Midwifery, King George s Medical College, Lucknow in addition to his own duties The Viceroy has selected Lieut Col H Austin Smith, surgeon to His Excellency for the appointment of Inspector General, Civil Hospitals Bihar and Orissa in place of Col G J H Bell, appointed to hold temporarily the post of Inspector General, Civil Hospitals, Burma, pending appointment of a permanent successor Major J D Sandes officiates as Professor and Second Physician, Medical College Calcutta, vice Lieut Col D M C Cay granted eight months leave Lieut Col A W R Cochrane is nominated a member of the United Provinces Medical Council, vice Lieut Col G T Birdwood, resigned

THE HONOURS LIST

Major F J Collings Canad A M C has been appointed an officer of the Most Excellent Order of the British Empire, for ' valuable services rendered in connexion with military operations in Siberia' , and Asst Surg H L Sargent East Afr Med Serv , has been awarded the Meritorious Service Medal for 'valuable services rendered in connexion with operations against the Northern Turkana and kindred tribes ''

BROUGHT TO NOTICE

The names of the following medical officers have been brought to notice for valuable services rendered in the places named —

North West Frontier of India —Col W F Hardy I M S Lt Col R J W Mawhinny C.B R A M C *Maj* W T McCowen, I M S Col A F Tate C M G A M S (R P)

South Persia.—Lt.-Col. (Temp. Col.) H. Burden, C.I.E., I.M.S.; Capt. (Temp. Lt.-Col.) H. R. B. Gibson, I.M.S.

Black Sea.—Temp. Capt. G. G. Bruce; Temp. Capt. (acting Major) A. Dick; Temp. Capt. J. Elder; Temp. Capt. (acting Major) J. D. Gunn; Temp. Capt. G. B. Wild; Capt. R. Chevassut; Capt. F. B. Jago; Capt. G. E. Tilsley; and Capt. W. A. Weatherhead, all of the R.A.M.C.

Kurdistan and Persia.—Capt. (acting Major) J. M. Weddell, R.A.M.C.; Lt.-Col. (Temp. Col.) J. A. Hamilton, C.M.G., I.M.S.

FOREIGN DECORATIONS.

Italian.

Order of the Crown of Italy.—Cavalier: Hon. Col. Sir A. Ogston, K.C.V.O., R.A.M.C. (T.F.); Bt. Maj. A. D. Griffith, R.A.M.C. (T.F.).

Serbian.

Order of the White Eagle "with Swords."—1st Class: Col. Sir A. E. Wright, K.B.E., C.B., F.R.S., late A.M.S. *4th Class:* Maj. C. L. Dunn, I.M.S.; Surg. Lt.-Col. B. Pares, C.M.G., D.S.O., Royal Horse Guards. *5th Class:* Temp. Capt. E. W. Archer, R.A.M.C.; Temp. Capt. G. H. Brown, R.A.M.C.; Temp. Capt. G. S. Coghlan, M.B.E., S.Afr.M.C.; late Temp. Capt. A. M. Fisher, R.A.M.C.; Temp. Capt. J. W. Grice, R.A.M.C.; Temp. Capt. E. E. Herga, M.C., R.A.M.C.; Temp. Capt. O. S. Kellett, R.A.M.C.; Temp. Capt. F. H. Looney, R.A.M.C.; Temp. Capt. E. H. Rainey, R.A.M.C.; Capt. G. W. Rose, R.A.M.C. (S.R.); Temp. Capt. W. J. Symes, R.A.M.C.

URBAN VITAL STATISTICS.

VITAL STATISTICS OF LONDON DURING APRIL, 1920.

IN the accompanying table will be found summarised statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious disease, it appears that the number of persons reported to be suffering from one or other of the ten diseases notified in the table was equal to an annual rate of 6·7 per 1000 of the population, estimated at 4,358,309 persons; in the three preceding months the rates had been 8·5, 7·7, and 7·1 per 1000. Among the metropolitan boroughs the lowest rates from these diseases last month were recorded in Paddington, Hammersmith, the City of Westminster, St. Marylebone, Hampstead, Stoke Newington, and the City of London; and the highest in Shoreditch, Bethnal Green, Poplar, Battersea, Wandsworth, and Deptford. One case of small-pox was notified during April from the Port of London. The prevalence of scarlet fever was slightly less than in the preceding month; this disease was proportionally most prevalent in Shoreditch, Bethnal Green, Poplar, Southwark, Deptford, and Greenwich. The Metropolitan Asylums Hospitals contained 1795 scarlet fever patients at the end of the month, against 2476, 2266, and 1981 at the end of the three preceding months; the weekly admissions averaged 223, against 280, 279, and 240 in the three preceding months. Diphtheria was somewhat less prevalent than in April; the greatest prevalence of this disease was recorded in St. Pancras, Shoreditch, Bethnal Green, Poplar, Battersea, and Wandsworth. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 1971, 2003, and 1964 at the end of the three preceding months, numbered 1937 at the end of April; the weekly admissions averaged 221, against 263, 240, and 260 in the three preceding months. The prevalence of enteric fever was about half that in the three preceding months; of the 22 cases notified during the month, 3 belonged to Kensington, 3 to Islington, 2 to Marylebone, 2 to Lambeth, and 2 to Wandsworth. There were 29 cases of enteric fever under treatment in the Metropolitan Asylums Hospitals at the end of the month, against 25, 30, and 38 at the end of the three preceding months; the weekly admissions averaged 4, against 4, 6, and 6 in the three preceding months. Erysipelas was proportionally most prevalent in St. Marylebone, Holborn, Finsbury, Bethnal Green, Greenwich, and Woolwich. The 39 cases of puerperal fever included 7 in Wandsworth, 5 in Battersea, 4 in Lambeth, and 3 in Islington. The 21 cases of cerebro-spinal fever included 3 in Islington, 3 in Bethnal Green, and 2 in Southwark, while the 2 cases of poliomyelitis belonged to Lambeth.

The mortality statistics in the table relate to the deaths of civilians actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the four weeks ended May 1st, the deaths of 5145 London residents were registered, equal to an annual rate of 15·4 per 1000; in the three preceding months the rates had been 14·6, 16·6, and 17·6 per 1000. The

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING APRIL, 1920.

(*Specially compiled for* THE LANCET.)

CITIES AND BOROUGHS.	Estimated civil population, 1919.	Notified Cases of Infectious Disease.												Deaths from Principal Infectious Diseases.									Deaths from all causes.	Death-rate per 1000 living.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.		
LONDON	4,358,309	1	990	969	—	22	—	39	201	21	2	2245	6·7	1	223	18	69	125	9	62	507	1·5	5145	15·4
West Districts:																								
Paddington	143,938	—	23	25	—	1	—	1	3	—	—	53	4·8	—	3	—	2	1	—	5	11	1·0	153	13·9
Kensington	157,886	—	32	40	—	3	—	—	7	1	—	83	6·9	—	7	1	3	2	—	5	18	1·5	176	14·5
Hammersmith ...	130,981	—	17	15	—	1	—	2	7	1	—	43	4·3	—	7	—	4	2	—	1	14	1·4	147	14·6
Fulham	152,543	—	38	29	—	1	—	2	8	—	—	78	6·7	—	6	—	4	5	1	1	17	1·5	154	13·2
Chelsea	60,573	—	14	10	—	1	—	—	3	—	—	28	6·0	—	1	—	—	—	1	—	2	0·4	43	9·3
City of Westminst'r	127,533	—	23	13	—	1	—	—	3	—	—	40	4·1	—	4	—	—	—	1	2	7	0·7	129	13·2
North Districts:																								
St. Marylebone ...	97,953	—	16	10	—	2	—	—	8	—	—	36	4·8	—	1	2	2	1	—	—	6	0·8	123	16·4
Hampstead	88,012	—	10	15	—	—	—	—	4	—	—	29	4·3	—	1	—	—	2	—	—	3	0·4	69	10·2
St. Pancras	219,434	—	31	59	—	1	—	1	7	1	—	100	6·0	—	18	1	2	10	—	2	33	2·0	269	16·0
Islington	323,034	—	51	76	—	3	—	3	9	3	—	145	5·9	—	14	—	8	14	—	5	41	1·7	408	16·5
Stoke Newington...	50,954	—	5	11	—	—	—	—	—	—	—	16	4·1	—	—	—	—	3	—	1	4	1·0	63	16·1
Hackney	216,736	—	35	55	—	1	—	2	12	—	—	105	6·3	—	17	1	3	9	—	2	32	1·9	278	16·7
Central Districts:																								
Holborn	38,156	—	7	5	—	—	—	—	3	—	—	15	5·1	—	—	—	—	1	—	2	3	1·0	57	19·5
Finsbury	75,291	—	13	13	—	—	—	—	10	1	—	37	6·4	—	2	—	2	1	—	—	5	0·9	94	16·3
City of London ...	13,893	—	—	2	—	—	—	—	1	—	—	3	2·8	—	—	—	—	—	1	1	2	1·9	18	16·9
East Districts:																								
Shoreditch	98,134	—	34	28	—	1	—	—	1	1	—	65	8·6	—	4	—	4	3	—	3	14	1·9	168	22·3
Bethnal Green ...	110,085	—	46	38	—	—	—	2	9	3	—	98	11·6	—	16	1	1	10	—	2	30	3·6	168	19·9
Stepney	232,506	—	63	39	—	—	—	2	13	1	—	118	6·6	—	10	1	—	18	—	4	33	1·9	334	18·7
Poplar	153,644	—	49	43	—	—	—	2	6	1	—	101	8·6	—	7	1	2	7	—	2	19	1·6	199	16·9
South Districts:																								
Southwark	179,971	—	54	36	—	—	—	1	11	2	—	104	7·5	—	16	1	1	3	1	1	23	1·7	229	16·6
Bermondsey	124,239	—	28	16	—	—	—	2	4	—	—	50	5·2	1	12	—	1	5	—	—	19	2·0	175	18·4
Lambeth	282,322	—	75	65	—	2	—	4	6	1	2	155	7·2	—	15	3	5	6	—	5	34	1·6	345	15·9
Battersea	159,316	—	37	47	—	1	—	5	7	—	—	97	7·9	—	17	1	2	4	1	2	27	2·2	181	14·8
Wandsworth	333,693	—	87	107	—	2	—	7	18	1	—	222	8·7	—	13	2	10	4	1	5	35	1·4	322	12·6
Camberwell	273 802	—	50	67	—	—	—	2	8	1	—	128	6·1	—	16	3	5	6	1	4	35	1·7	308	14·7
Deptford	111,205	—	42	23	—	1	—	—	8	—	—	74	8·7	—	3	—	1	2	—	4	10	1·2	115	13·5
Greenwich	98,484	—	23	20	—	—	—	—	8	1	—	57	7·5	—	4	—	2	4	—	—	10	1·3	118	15·6
Lewisham	167,754	—	46	36	—	—	—	—	5	1	—	88	6·8	—	1	—	3	—	—	—	4	0·3	170	13·2
Woolwich	136,237	—	36	26	—	—	—	1	12	1	—	76	7·3	—	8	—	2	2	1	3	16	1·5	132	12·6
Port of London ...	—	1	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

death rates ranged last month from 9 3 in Chelsea, 10 2 in Hampstead, 12 6 in Wandsworth, 12 6 in Woolwich, 13 2 in Fulham, 13 2 in Lewisham, and 13 2 in the City of Westminster, to 16 9 in the City of London, 16 9 in Poplar, 18 4 in Bermondsey, 18 7 in Stepney, 19 5 in Holborn, 19 9 in Bethnal Green, and 22 3 in Shoreditch The 5145 deaths from all causes included 507, which were referred to the principal infectious diseases, of these, 1 resulted from small pox, 223 from measles, 18 from scarlet fever, 69 from diphtheria, 125 from whooping cough, 9 from enteric fever, and 62 from diarrhœa and enteritis among children under 2 years of age Among the metropolitan boroughs the lowest death rates from these diseases were recorded in Chelsea, the City of Westminster, St Marylebone, Hampstead, Finsbury, and Lewisham, and the highest in St Pancras, Bethnal Green, Bermondsey, and Battersea The death from small pox was that of a Norwegian sailor, and occurred at the South Wharf Shelter of the Metropolitan Asylums Board, situated in Bermondsey The 223 deaths from measles were 27 fewer than the average number in the corresponding period of the five preceding years, this disease was proportionally most fatal in St Pancras, Hackney, Bethnal Green, Southwark, Bermondsey, and Battersea The 18 fatal cases of scarlet fever exceeded the average by 2, and included 3 in Lambeth, 3 in Camberwell, 2 in St Marylebone, and 2 in Wandsworth The 69 deaths from diphtheria were 19 above the average number, the greatest proportional mortality from this disease occurred in Hammersmith, Fulham, Islington, Finsbury, Shoreditch and Wandsworth The 125 fatal cases of whooping cough showed a decline of 18 from the average, this disease was proportionally most fatal in St Pancras Islington, Stoke Newington, Bethnal Green, Stepney, and Poplar Nine deaths from enteric fever were registered during the month, against an average of 5 The 62 fatal cases of infantile diarrhœa were 5 in excess of the average, the greatest proportional mortality from this disease occurred in Paddington, Kensington, Holborn, the City of London, Shoreditch, and Deptford In conclusion, it may be stated that the aggregate mortality in London during April from these principal infectious diseases was 2 7 per cent below the average in the corresponding period of the five preceding years

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(Week ended May 22nd, 1920)

English and Welsh Towns —In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 18 million persons, the annual rate of mortality, which had been 14 2, 13 8, and 13 8 in the three preceding weeks, fell to 13 2 per 1000 In London, with a population of nearly 4½ million persons, the annual death rate was 12 0, or 0 5 per 1000 below that recorded in the previous week, while among the remaining towns the rates ranged from 4 3 in Eastbourne, 4 5 in Enfield, and 5 4 in Oxford, to 20 3 in Blackburn, 23 7 in Sheffield and 25 2 in Tynemouth The principal epidemic diseases caused 291 deaths, which corresponded to an annual rate of 0 9 per 1000, and comprised 103 from measles, 60 from whooping cough, 56 from diphtheria, 53 from infantile diarrhœa, 14 from scarlet fever, and 5 from enteric fever Measles caused a death rate of 1 6 in Swansea, 1 7 in Wimbledon and in Blackburn, 1 8 in Newport (Mon) and 3 0 in Wigan, and whooping cough of 1 6 in Middlesbrough and 1 9 in Carlisle The deaths from influenza, which had been 202, 201, and 216 in the three preceding weeks, fell to 211, and included 72 in Sheffield, 31 in London, 10 each in Birmingham and Manchester, and 8 in Rhondda There were 1894 cases of diphtheria, 1734 of scarlet fever, and 1 of small pox under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 1916, 1757, and 6 respectively at the end of the previous week The causes of 31 of the 4491 deaths in the 96 towns were uncertified, of which 4 were registered in Birmingham, and 3 each in London, Liverpool, and Gateshead

Scotch Towns —In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2½ million persons, the annual rate of mortality, which had been 18 3, 18 4, and 16 9 in the three preceding weeks, fell to 15 6 per 1000 The 375 deaths in Glasgow corresponded to an annual rate of 17 6 per 1000, and included 17 from influenza 12 from measles, 6 each from small pox and infantile diarrhœa, 5 from diphtheria, 4 from whooping cough, and 3 from scarlet fever The 76 deaths in Edinburgh were equal to a rate of 11 6 per 1000, and included a fatal case each of diphtheria and infantile diarrhœa

Irish Towns —The 171 deaths in Dublin corresponded to an annual rate of 21 5, or 0 9 per 1000 above that recorded in the previous week, and included 15 from whooping cough, 6 from measles, and 2 each from infantile diarrhœa and influenza The 124 deaths in Belfast were equal to a rate of 15 7 per 1000, and included 6 from infantile diarrhœa, 3 each from scarlet fever and influenza 2 from diphtheria, and 1 each from measles and whooping cough

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"Audi alteram partem '

HELMINTHIC INFECTIONS IN RELATION TO PELLAGRA.

To the Editor of THE LANCET.

SIR,—I have read with very great interest, in the issues of THE LANCET for May 1st and 8th, the important and suggestive articles on pellagra by Dr. A D Bigland and Dr J I Enright, together with the informing leading article summarising present views in regard to the difficult and debatable question of the ætiology of this disease While Dr Bigland had no need whatever to refer to the quotation of the late Dr Sandwith in connexion with his own article, I am only too conscious that it may be held to apply to my case in venturing to suggest that helminthic infections may constitute a definite ætiological factor in pellagra I am emboldened, however, to take this risk because of the arresting fact, which I learn for the first time from Dr. Enright's paper, that an outbreak of pellagra occurred also among the well fed German prisoners at the beginning of 1919 As stated in the report of the Committee appointed to investigate the outbreak among the Turkish prisoners in the autumn of 1918, there was no occurrence of pellagra among the Germans up to the time when the Committee had concluded its inquiry

When I had the honour of being appointed to undertake the protozoological and other incidental parasitological work for the Commission, I approached the subject of pellagra, which was entirely new to me, with a mind perfectly open and unbiased I mention this, because the first thing that struck me on studying the available literature was the vehement manner in which the partisans of the two chief rival views—namely, the parasitic infective hypothesis and that of dietetic insufficiency—maintained and defended their respective attitudes In the course of my own examinations I obtained not the slightest indication that any protozoan, spirochætal, or other minute organism could be incriminated in connexion with the disease The one finding which did make considerable impression on my mind was the prevalence of helminthic infections, particularly of ascaris, and in a lesser degree of trichocephalus The actual percentage findings of the eggs in the stools of Turkish pellagrous cases were ascaris, 31 5 per cent , and trichocephalus, 21 6 per cent , and, as I state in my own section of the report, "these figures by no means indicate the real proportion of Turkish prisoners infected, which I estimate to have been certainly twice as high and probably more," for reasons there given (Eggs of ankylostomum, it is to be noted, were not found in any case) But I also examined, as controls, the stools of German prisoners in the hospital—men in a nominally normal condition as regards their bowels—and found that they were also infected to a considerable extent with the above nematodes, although in a less degree than were the Turks Ascaris was found in 15 per cent of the stools examined, and here again the actual proportion was undoubtedly much higher This observation surprised me somewhat, because these eggs occurred only most exceptionally in British stools

As a result of my own work and of the entirely negative findings on the bacteriological side I formed the opinion that if any parasite were concerned in the causation of the disease it must be one or more of these very well known intestinal nematodes Could ascaris (say) be regarded as a possible ætiological factor ? I knew that ascaris, as a cause of any general or systemic disturbance, was not usually considered seriously And, of course, there could not be in any case between these nematodes and pellagra the sole binding relation of cause and effect comparable to that obtaining in the case of many microbic diseases Because such helminthic infections are known to occur in many districts and countries where pellagra is never or only rarely met with.

The view I ultimately put forward in the "Summary and Conclusions" of my report was that these nematode infections are to be regarded as an additional or contributory factor in the ætiology of the disease, perhaps especially important as a predisposing cause. I was precluded by the scope of the report from referring to other work or entering into consideration of epidemiological data in connexion with pellagra; but it is not out of place to indicate briefly here the reasons and the train of thought which led me to make the above suggestion. The following is taken largely from that portion of the draft of my report which had—unfortunately, I thought—to be omitted.

Upon consideration of the literature at hand, which dealt mainly with recent work on pellagra in America, I saw that Goldberger's experiments showed, in most definite and convincing manner, that dietetic insufficiency could be a most important, and probably was indeed a decisive causal factor. The point was, was it the only, all-sufficing one? Because, on the other hand, there was a considerable body of opinion which maintained that a deficiency in diet could not be regarded as, at any rate, the sole essential ætiological factor. This school of thought (represented, among others, by Siler, Garrison, and McNeal) considered that some infective agency was also primarily concerned. In support of this view a number of epidemiological data had been brought forward, having reference mainly to the localised distribution of outbreaks and to indications connecting the cases with their immediate environmental surroundings and conditions. It seemed to me that much of this evidence had weight, and that the most reasonable and natural explanation was that offered—namely, the occurrence of some infective agent. It interested me considerably to find that the modern tendency was to abandon the hypothesis of transmission by a biting insect—that is to say, through inoculation—and to favour transmission through the medium of the soil—i.e., the parasite was regarded as an intestinal one, conveyed by accidental contamination of food, drink, and so on. Stress had been laid recently upon a close association of pellagra with inefficient sewage disposal, and it had been stated that improved sanitation in certain districts had been followed by a marked reduction in the incidence of this disease.

I thought that if a nematode infection were implicated it would fulfil admirably every condition required to satisfy the data furnished. There was only one biological point as to which I was a little uncertain (to which reference is made below). Lastly, I read of a statement by Cole which seemed so *apropos* of my idea that I cannot refrain from citing it.[1] Though I am well aware that an isolated observation has little scientific value, it is possible that this one may be of importance in another direction than that indicated by the author. Cole believed that the best treatment for pellagra was the administration of calomel, santonin, and castor oil, and based his faith in these remedies upon the statement of a woman whose three children were suffering from roundworms and pellagra. She gave them vermifuge for the worms, and was surprised to find that not only the worms but also the pellagra disappeared!

I next tried to ascertain what evidence there was of an association between the occurrence of nematodes and pellagra. Very few statistics on this point appeared to have been collected by American workers. The one paper which I could find was by Ridlon, who, in examining the stools of 95 patients, observed *Necator (Ankylostomum) americanum* in 10 and strongyloides in 2; no ascaris eggs were noted. This worker, however, does not appear to have made his observations in the most suitable manner for the detection of eggs. (He emulsified a small portion of the fæces in a large drop of salt solution and examined with an oil-immersion objective. This method will serve quite well for the detection of minute flagellates, for instance, but not nearly enough ground would be covered to say whether eggs were absent or present. I always examined four cover-slip preparations, which contained much more fæcal matter than those made for the detection of protozoa, with a low-power objective.) On the other hand, the frequent association of hookworms and pellagra had been noted in America.

As for Egypt generally, as was well known, the natives are infected to a large extent not only with ankylostomum, but with ascaris, and pellagra is rife amongst them. Indeed, Sandwith and Pell have suggested that the presence of helminthic infections may be a more important contributory factor in the causation of pellagra than has hitherto been thought. The prevalence of a specific ascaris infection is referred to by Dr. R. G. White, of the Public Health Department, Cairo, in his report on the outbreak of pellagra in the Armenian Refugee Camp at Port Said in 1916-17. And Professor W. H. Wilson himself informed me that during a heavy pellagra season in 1917 in the Egyptian convict prison at Tourah (?), a large percentage of ascaris infections was observed. As regards Italy, it has been stated (Blanchard) that nematode infections are general and widespread; and Low and Sambon have remarked that a distinct eosinophilia is frequently noticeable in cases of pellagra. In short, the cosmopolitan distribution of such nematodes as ascaris would agree perfectly well with the distribution of pellagra, which is now becoming recognised as almost cosmopolitan, even though, in some districts, its occurrence is rare and sporadic. The coincidence is, at any rate, very much closer than in the case of pellagra and any particular variety of biting-fly.

At this stage I laid the results of my observations, and the opinion at which I had arrived, before Major A. Ferguson,[2] under whose general direction, as head of the Bacteriological Laboratory Service, E.E.F., my work was carried out. He kindly offered to introduce me to Major F. H. Stewart, I.M.S., then in Cairo, in order that I might ascertain directly the latest known facts concerning the biology of ascaris, and the views held as to its pathological effects. I wish very much to thank Major Stewart for the information he gave me, both then and in a more recent conversation which I have been able to have with him.

The point about the biology which I was particularly anxious to know was whether the eggs, if ingested by another man shortly after being passed in the fresh fæces, would develop. Major Stewart's answer was decidedly in the negative. The eggs, unripe when passed, require, for the development of the embryo, to spend a period of time in a moist situation, with free access to air; otherwise they are not infective. The importance of this fact is at once recognised in connexion with the so-called crucial transmission-experiment of Goldberger, in which this author claimed to have shown by feeding volunteers with all manner of materials from patients that there was no transmissible factor concerned in pellagra. Precisely with regard to ascaris (and quite likely other nematodes as well), the experiment would fail, for the above reason, although eggs might be present in the fæces! But the pollution of damp soil, together with untidy habits, would be the surest means of bringing about contaminative infection. Much, also, has been made of the argument that as attendants on patients suffering from pellagra (in institutions, &c.) do not thereby become themselves pellagrous the disease is not "infectious"; but, again for the above reason, neither would they, if of cleanly habits, contract a nematode infection.

With regard to the effects of ascariasis, I was impressed by finding that Major Stewart took a more serious view of these than I had thought likely. The gist of what he told me has been succinctly stated by him in a recent paper[3] in the following words: "It may be doubted whether the importance of this disease [i.e., intestinal ascariasis] is sufficiently recognised in State medicine. There is reason to suppose that a great deal of the debility of the natives of the tropics is due to ascariasis, and that this disease is at least equal to ankylostomiasis in economic importance."

The above, then, were the data which led me to put forward a view which might be regarded as a combination of the two chief hypotheses. I suggested that, in addition to one essential factor, deficient nutrition, another might be necessary—namely, the presence of a helminthic infection, either as a predisposing or as an associated cause. (I thought it quite likely that more than one of these nematodes, e.g., ankylostomum, as well as ascaris might be implicated.) However, if I may so express myself, the general atmosphere in which the Commission was by now labouring was so favourable and conducive to the rapid and luxuriant growth of the dietetic-deficiency hypothesis that any other little plant had scarcely room to raise its tender little head, still less to thrive. In other words, biologic protein value (B.P.V.) deficiency was by this time regarded as of itself an all-sufficient explanation, the one essential causative factor, and, indeed, it certainly did seem fully capable of explaining all the facts relating to the outbreak amongst the Turkish prisoners of war. Hence, as a one-factor hypothesis appeared sufficient, it seemed to the Commission unnecessary to include any other factor in possible explanation of the ætiology of the disease, and the Commission did not support me in thinking that any direct or special importance might be attached to the occurrence of helminthic infections in this connexion.

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[1] Abstract in Trop. Dis. Bull., vol. viii, 1915, p. 347.

[2] I desire to take this opportunity of saying how greatly I feel I am indebted to the late Major Ferguson for all his valuable assistance and the unfailing consideration which he showed to me while I was with the E.E.F. By his death medical science in Egypt has suffered a severe loss. Merely to read his report of the work done by himself and Captain Campbell for the Pathological Section of this same Commission, a report which was written while he was actually far from well, is to gain instant appreciation of the excellence of his work. Not only as a scientific statement, but also on account of its literary style, this analysis compels one's admiration.

[3] Parasit., 10, 1918, p. 197.

As stated at the commencement of this letter, I am induced to bring forward again the above view because of the remarkable fact that pellagra occurred subsequently among the well-fed German prisoners. According to Enright, there can be no question that the diet of the Germans possessed an adequate B.P.V. This being so, it does appear to me that—to pursue the above simile—the robust plant so well nourished and watered in Cairo outgrew its strength and is in need of pruning. Its growth was perhaps a trifle too rampant, that is all. Because it can hardly be doubted that this plant will prove most productive of valuable fruit. As the review in THE LANCET points out, the work of the dietetic and biochemical sections of the Commission will provide a landmark in the history of the ætiology of pellagra. Therefore, I think Enright is far too hasty in saying that the *food deficiency "theory"* is "exploded", but he himself has distinctly qualified this statement in a preceding sentence. On the other hand, I entirely agree with him in thinking that, as the *only* essential causative *factor*, this hypothesis is seriously threatened. "Obviously, something more than a dietetic factor is involved," and I myself am now still more strongly of the opinion that this *additional factor may well be a helminthic infection.*

Consider the case of these German prisoners. Even though it is quite likely that some of those who became pellagrous had defective digestive assimilation as a result, say, of precedent bacillary dysentery, that factor, as Enright clearly points out, could not of itself account for an outbreak of pellagra. Now, what other possible factor had the Germans in common with the Turkish prisoners? They had a prevalent nematode infection, well marked, if not to such a high degree as in the case of the Turks. Again, since the well-fed Germans contracted pellagra, why did this disease never occur among the British troops? Was it because there were practically no intestinal helminthic infections amongst the latter? During my sojourn in the East I examined altogether something like 5000 British stools and during the whole period of nearly three years at no time were eggs found except on the rarest occasions; their occurrence was so exceptional that I did not consider it necessary to keep any figures. But I see that O'Connor has tabulated the helminthic infections found in the course of his examinations of British stools.[4] Out of 2082 cases he observed ankylostomum in 1, trichocephalus in 9, and ascaris in 0! Adding them all together the percentage is under 0.5; doubling or even quadrupling this figure (for under-estimation) the percentage is still only 1 or 2. Contrast this British percentage with my estimate of anything up to at least 30 per cent. of ascaris alone in the case of the Germans I examined. Is it not likely that this great difference has some significance?

I wish now to refer, although with much diffidence, to another side of the question. In the first place, the fourth conclusion arrived at by Colonel F. D. Boyd, in his valuable report on the clinical aspect of pellagra as seen among the Turks, is stated as follows:—

> "The clinical features of the disease are those of a profound suprarenal inadequacy, but there is no sufficient evidence to prove how this inadequacy is produced."

I abstract next the following sentences from Dr. Bigland's paper:—

> "This brings me to the second supposition regarding the ætiology of pellagra—viz., the presence of some toxic substance. I would suggest that such a toxin is present in these cases, and that it acts upon the intestines or the contents thereof in such a way that protein is not assimilated as it ought to be. . . . It only remains to discuss what is the nature of this hypothetical toxic substance. It must enter the body from without. It cannot be the result of a metabolic error, because the disease occurs in epidemics. Its probable habitat is the digestive tract. . . . *It may be, however, that this toxic substance makes its effect by attacking the endocrine organs, especially the suprarenals.*" (the italics are mine).

On reading this, the question naturally occurred to me, Could ascaris and other nematodes produce such a toxin? Major Stewart informed me that ascaris certainly does produce a toxin, and on looking up to see if any work had been done upon the specific effects produced by such a toxin, I came across a paper by Phillips Bedson, upon "*Lésions des organes à sécrétion interne dans l'intoxication vermineuse.*"[5] Certain of the observations made in the course of this experimental work seem to me sufficiently important and suggestive to justify my bringing them to the notice of any who may think such a line of research is worth following up in relation to pellagra.

> Bedson injected into guinea-pigs the (sterile) peri-enteric liquid (presumably the hæmocœlic fluid) of *Ascaris megalocephala* and filtered extracts of different species of tænia. The author's account is divided into two parts. One part deals with the effects of acute helminthic intoxication produced by intravenous injection of a single dose of the above toxic liquid, the other with the effects of chronic intoxication produced by successive daily doses (smaller in amount) given subcutaneously (for fuller details the reader is referred to the original). As regards the chronic intoxication the animals did not all react in the same manner to the injections. Some remained in good health, while others became emaciated and lost weight, the loss varying in general with the duration of the experiment. The lesions were the same whether the toxic liquid was from ascaris or from tænia. Of all the ductless glands the suprarenals showed the most important lesions, whether as a result of acute or of chronic intoxication. The thyroid gland reacted equally, but chiefly to subacute or chronic intoxication. The importance of the lesions was related rather to the number of the injections and *duration of the intoxication than to the quantity of toxin injected.*
>
> Dealing with the effects of chronic intoxication on the suprarenals the author states that at autopsy these glands were found to be congested, sometimes intensely. The lesions varied according to the manner in which the animal had reacted to the toxin. Sometimes the glands were found to have recovered from the attack (as it were)—i.e., reacted to the first injection and showed after the lapse of some *time manifest signs of hyperfunction; in the other cases the suprarenals had not been able to resist the action of the toxin and had remained in a condition of hypofunction.*

Is it possible, I would ask, that some of these helminths produce similar effects, even though perhaps in lesser degree, on the human suprarenals as a result of the secretion or excretion by the worm of some substance, or product of metabolism which is toxic? Admitting this possibility, the power of the suprarenal glands to react successfully to the toxic principle may vary considerably also in the human organism, as Bedson found in the case of the guinea-pig. If this be so, it will be clear, I think, that a helminthic infection might be, under certain conditions and especially when associated with dietetic insufficiency, *one very important factor in causing suprarenal* inadequacy and pellagra.

In conclusion, I will quote Dr. Bigland's expression of opinion: "It must not be thought that the disease is a clinical entity in the sense that it has one definite cause only in its production. It may be of the nature of a syndrome for which more than one factor may be responsible. In some cases the importance of one factor (e.g., B.P.V. deficiency) may predominate, in others that of another factor (e.g., helminthic intoxication), while in still others both factors may be equally important."

I am, Sir, yours faithfully,

H. M. WOODCOCK, D.Sc. Lond.,

Lately Protozoologist to the Committee of Inquiry into the
Prevalence of Pellagra among Turkish Prisoners of War.

Lister Institute of Preventive Medicine, Chelsea-gardens, S.W.,
May 18th, 1920.

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[4] Journ. Trop. Med., vol. xxii, 1919, p. 166.

[5] Ann. Inst. Past., xxvii, 1913, p. 681.

SPECIFICITY AND EVOLUTION IN DISEASE.

To the Editor of THE LANCET.

SIR,—I was very much interested in reading the historical retrospect on the above subject by Sir William Job Collins in THE LANCET of May 15th. In my last annual report to the Education Committee, writing in reference to the condition of the children attending the elementary schools, on my return to duty after some four years absence, I said that—

> "Owing to various causes, such as stress of the war, the food difficulty, shortage of staff, outbreaks of various diseases, &c., the health of the children and teachers has obviously suffered in many cases ...... in this connexion I might mention that the children attending the schools on the high ground at the back of St. Leonards and Hastings appeared in better health than those in the valleys. In reference to the food question, apparently the majority of children had sufficient in bulk, but it was deficient in quality, and certain essentials, such as fats and sugar, which to my mind are most important constituents for a growing child, were reduced to a minimum. ...... Personally, I am inclined to think the present epidemic of skin troubles, from which so many of the children are suffering, is in some measure due to the alteration in the diet, since it is possible owing to the constituents of the tissues themselves having become modified they are less able to withstand attacks of infective organisms; also certain microbes which are usually harmless have been able to take on pathogenic properties owing to such modification of the body tissues. The same cause might also account for other epidemics which have been so prevalent during the past year or two."

I made the above remarks with a view to emphasising the fact that certain defects among the children were apparently the result of evolution, brought about by abnormal conditions.

In another part of my report I make the statement:—

> "Children do not always eat sweets on account of their attractive taste, but to supply a physiological want, more especially owing to the present shortage of sugar."

Here, again, I believe that sugar and also fats play a most important part, from the point of view of evolution, in the history of a race, not only as regards diet, but as a prophylactic against disease.

In reference to other diseases, viewed in the light of evolution, many intricate pathological conditions might find a rational explanation. Take, for instance, the ætiology of cancer, might not this be due to an attempt at asexual reproduction on the part of nature at a time of stress? Similar phenomena are known to take place in the lower forms of animal life.

I am, Sir, yours faithfully,
O. POLHILL TURNER, D.P.H. Oxon.,
Hastings, May 18th, 1920. School Medical Officer.

THE FEE FOR CONDUCTING AN AUTOPSY.

To the Editor of THE LANCET.

SIR,—Would it not be a good thing to make an effort to get the fee paid for making a post-mortem examination by order of a coroner increased? A fee of one guinea was, to say the best of it, small before the war. It is now miserably inadequate. A post-mortem examination cannot be properly made in under an hour. It has to be performed at short notice and often at an inconvenient time. It requires considerable skill to perform and to draw the right conclusions from it. In the country there are none of the facilities of a city mortuary, no skilled assistance, and very often no proper cleansing accommodation. In fact, in the country it is often hard to find anything which can be said to really facilitate the examination. I think very few will suggest that if the present fee were trebled it would be excessive. I am, Sir, yours faithfully,

Weybridge, May 20th, 1920. J. W. ROB.

THE BRITISH SCIENCE GUILD.—The annual meeting of the British Science Guild will be held at the Goldsmiths' Hall, Foster-lane, London, on Tuesday, June 8th, at 3 P.M. Lord Sydenham, G.C.S.I., F.R.S., in vacating a presidency marked by two successful Scientific Products Exhibitions, will deliver an address on "Science and the Nation," and this will be followed by an address on "Some National Aspects of Transport" by the incoming President, Lord Montagu of Beaulieu, whose contributions to mobility of many types in India and at home seem likely to be succeeded by illustrations of mobility of quite another type in the urgent and important application of knowledge to national affairs. Applications for invitations to the meeting should be addressed to the Secretary of the British Science Guild, 6, John-street, Adelphi, London, W.C. 2.

Medical News.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—Examinations for the Diplomas in Psychological Medicine and Ophthalmic Medicine and Surgery of the Royal Colleges of Physicians and Surgeons will commence on June 28th and July 26th respectively. Full information can be obtained from the Secretary, Examination Hall, 8, Queen-square, Bloomsbury, W.C.1.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—At the special and ordinary First Professional Examination for the diploma of Fellow, held from May 4th to 15th, 168 candidates presented themselves, of whom 74 were approved and 94 were rejected. The following are the names and medical schools of the successful candidates:—

A. L. Abel, Univ. Coll.; H. H. Bailey, London Hosp.; J. A. Berry, Guy's; O. Brenner, Birmingham Univ.; R. St. L. Brockman, St. Bart.'s; D. J. Browne, Sydney Univ. and Middlesex; A. G. Bryce, Manchester Univ. and Middlesex; W. F. Christie, Edinburgh Univ.; E. A. Coldrey, St. Bart.'s; S. H. Cookson, Birmingham; V. M. Coppleson, Sydney Univ. and Middlesex; H. Corsi, St. Bart.'s and St. Mary's; R. K. Dadachanji, London; R. M. Dannatt, St. Bart.'s; W. M. Dickson, Edinburgh Univ.; T. F. M. Dilworth, St. Thomas's; C. F. T. East, Oxford Univ. and King's Coll.; J. A. W. Ebden, Westminster; D. J. Evans, Birmingham Univ.; G. I. Evans, St. George's; W. C. Faull, St. Mary's; A. W. Fawcett, Bristol Univ.; L. R. Fifield, London; W. D. Galloway, Guy's; A. T. Gibb, Manchester Univ.; J. W. Gilbert, Bristol Univ.; P. K. Gilroy, Cambridge Univ. and St. George's; V. B. Gokhale, Bombay and Middlesex; E. Grey, Manchester Univ. and Middlesex; A. R. Gunn, Edinburgh Univ. and St. Bart.'s; S. G. Harrison, St. Bart.'s; F. H. Healey, Birmingham Univ.; S. L. Higgs, Cambridge Univ. and St. Bart.'s; J. P. Hosford and R. W. P. Hosford, St. Bart.'s; F. Hudson, Univ. Coll.; J. B. Hunter, Cambridge Univ. and Univ. Coll.; I. B. Jose, London; N. J. Judah, Edinburgh Univ.; G. L. Keynes, Cambridge Univ. and St. Bart.'s; J. Le M. Kneebone, London; E. A. Linell, Manchester Univ.; S. D. Lodge, Leeds Univ.; J. Love, Middlesex; W. M. H. McCullagh, Queen's Univ. and Middlesex; A. C. Maconie, St. Bart.'s; N. S. Macpherson, St. Thomas's; W. C. B. Meyer, Edinburgh Univ. and Univ. Coll.; P. J. Moir, Glasgow Univ. and London; O. G. Morgan, Guy's; D. F. A. Neilson, St. Thomas's; R. L. Newell, Manchester Univ.; H. G. Oliver, London; L. F. O'Shaughnessy, Durham Univ.; S. T. Parker, Otago Univ. and Middlesex; Eleanor Joyce Partridge, Lond. Sch. Med. for Women; D. H. Patey, Middlesex; C. V. Patrick, St. Thomas's; P. P. Pughe, Univ. Coll.; F. H. Scotson, Manchester Univ.; S. C. Shanks, Glasgow Univ.; E. S. S. Smalpage, Sydney Univ.; J. F. H. Stallman, Guy's; C. Sturton, Cambridge Univ.; C. H. Terry, St. Bart.'s; C. P. Thomas, Cardiff and Westminster; J. W. T. Thomas, Middlesex; A. H. C. Visick, St. Bart.'s; E. Watson-Williams, Cambridge and Bristol Univs. and Middlesex; H. P. W. White, Edinburgh Univ.; H. A. B. Whitelocke, Middlesex; O. H. Williams, Edinburgh and Liverpool Univs.; A. D. Wright, St. Mary's; and H. B. Yates, St. George's.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH.—A quarterly meeting of the Royal College of Physicians was held on May 4th, Sir Robert Philip (President) in the chair. Dr. Andrew Graham Ritchie was elected a Fellow of the College. Dr. George Sandison Brock, M.B.E., Dr. Chung Yik Wang, and Dr. Thomas Frederick Corkill were elected Members of the College. The Lister Fellowship for Original Research was awarded to Dr. G. W. Marshall Findlay.

Parkin Prize.—This prize of £100 is open to competitors of all nations. The subject of the essay for the present period is "On the Curative Effects of Carbonic Acid Gas or Other Forms of Carbon in Cholera, for Different Forms of Fever and Other Diseases." Essays intended for competition, which must be written in the English language, to be received by the secretary not later than Dec. 31st, 1920.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH.—*At a meeting of the College held on* May 19th the following candidates, having passed the requisite examinations, were admitted Fellows:—

John Stanley Arkle, Cyril Victor Baigent, Harry Banks, Max Richard Boe, August Lyle Buchanan, Charles Henry Corbett, Pares Chandra Datta, John Newbury Fraser Ferguson, Frank Cyril Greig, Edward Wilson Hall, Arthur Dodsworth Haydon, Ashley Ernest Herman, William Henry Johnston, Gideon Johannes Joubert, Charles Hardiman Laver, Arthur Poole Lawrence, Crichton Raoul Merrillees, Ronald Kelburne Merson, Ryder Percival Nash, John Millie Pringle, Frank Hubert Robbins, Harold Farley Seymour, Frederick Montgomery Spencer, Robert Stevenson, Claude Bartley Tudehope, Cuthbert Arnold Verge, Rankin Greig Walker, Andrew Walbrugh, Norval James Watt, Harold Williamson, and Gordon Stewart Woodman.

The following candidates, having passed the requisite examinations, had the Higher Dental Diploma conferred upon them:—

Douglas Llewellyn George Radford, Charles Henry Kemball, and James Dalgleish Hamilton Jamieson.

At the same meeting the Bathgate memorial prize, consisting of bronze medal and set of books, was, after a competitive examination in materia medica, awarded to Mr Herbert John Appleyard The Ivison Macadam memorial prize in chemistry, consisting of bronze medal and set of books, was awarded after competitive examination, to Mr Leonard Alexander Watson

UNIVERSITY OF MANCHESTER —At the recent meeting of the University Court it was stated that the number of students attending the University is 2778 nearly double that of 1914-15 In the Faculty of Medicine alone the number has risen from 270 in 1913 to 766 at the present time There are now 574 women students in the University The University appeal launched in December makes progress, but the half way point towards the £500 000 asked for has not yet been reached the amount at present promised touches £200 000 The Vice Chancellor, Sir Henry Miers, said recently—

> Some people may have thought that the University has been doing in some respects an undignified thing in having a startling press campaign I am inclined to think there is no other way nowadays of approaching the main mass of the population in a great industrial district like this but through the press At any rate one effect of this campaign is that the University and its needs are certainly well known throughout the whole district and there is no excuse for anyone to say they have never heard of the existence of the University or of the difficulty under which it carries on its work

THE VOLUNTARY HOSPITAL AND THE REMUNERATION OF THE STAFF —A conference of representatives of the honorary visiting staffs of some of the larger voluntary hospitals of the Midlands was held at the Leicester Royal Infirmary on May 18th The hospitals represented included those of Birmingham, Burton, Coventry, Derby Leicester Loughborough, Manchester, Northampton Nottingham Salford, Sheffield, Stoke on Trent West Bromwich, and Wolverhampton Thirty six representatives were present The chair was taken by Sir Richard Luce, of Derby The questions brought up for discussion were —

1 The desirability of payment for the visiting staff for work done at their hospital on behalf of the Ministry of Pensions the Ministry of Health or the local medical health authorities and if so at what rates

2 Whether the time has come to ask for payment for the visiting staff for all work done by them at the hospitals and *if so* whether this should take the form of an honorarium a salary or a percentage of the expenses of the hospital

If not what alteration in the existing management or financial arrangements of the hospitals would create the need for such a request

After full discussion the following resolutions were passed —

1 That payment for the visiting staffs was desirable for work done at their hospitals on behalf of the Ministry of Pensions the Ministry of Health or for the local medical health authorities

The question of methods and rates of pay was referred to a committee for detailed consideration and report

2 That the time has not come for visiting staffs to ask for payment for all work done by them at the hospitals

It was felt, however, that the need for such a request would arise if the State or local authorities should assume control over the hospitals or if the income of the hospitals ceased to be derived from voluntary contributions No definite organisation was formed for future meetings but the chairman and secretary to the meeting were instructed to reassemble the conference at their discretion

HEALTH EXHIBITION IN BELFAST —A health exhibition collected together by the Women's National Health Association of Ireland (of which the Marchioness of Aberdeen was the foundress) was opened in the Ulster Hall Belfast on May 17th, by the Countess of Shaftesbury, under the auspices of the Public Health Committee of the Belfast City Council and the Council of Social Welfare and has since been largely attended In connexion with it an address on "Housing" was given on the evening of May 17th by Sir Crawford McCullagh (chairman of the Belfast Housing Committee) which showed that the whole difficulty arose from the high price of materials and from the rising wages of workers On the next evening May 18th an address was given by Sir John Byers on Mother and Child, in which special emphasis was laid on the importance of providing more maternity beds available for serious obstetric cases and for those living in crowded dwellings and on the evil of separating mother and child, as exemplified in the high illegitimate infantile mortality rate On May 19th the lecture on Tuberculosis was given by Professor J A Lindsay in which special attention was drawn to better civilisation as a factor in preventing tuberculosis and to the awful condition of the national schools in Belfast, some of which he said would be a disgrace to the Soudan Mr R J Johnstone on May 20th lectured on The State and Public Health While strongly approving of the State taking more to do with the public health, he expressed himself as being totally opposed to a State medical service On May 21st Mr D Houston of the Irish Agricultural Society lectured on Milk, and brought out the importance of healthy cows and of clean dairying

TUBERCULOSIS SOCIETY A REPRESENTATIVE CONGRESS —Under the auspices of this society a two-day Congress was held in Leeds on May 13th and 14th, with additional meetings at Bradford and Harrogate on the 12th and 15th The Congress was representative of tuberculosis workers from all parts of the country, including Ireland The preliminary meetings in Bradford were addressed by Dr Nathan Raw, M P who outlined the proposals of the Government with regard to industrial settlements, Mr H Thornton Pullan (chairman of the Bradford Health Committee) Dr H Vallow (tuberculosis officer, Bradford), Dr H de Carle Woodcock (the President), and others The chief substance of these meetings was devoted to the need for better housing and the necessity of a clean milk supply On Saturday May 15th, delegates visited Harrogate, where they were entertained to luncheon, and visited the baths

ASSOCIATION OF PHYSICIANS OF GREAT BRITAIN AND IRELAND —The thirteenth annual meeting of this association was held at the University of Manchester on May 21st and 22nd Dr Judson Bury was in the chair, and about 100 members attended At the business meeting Dr Judson Bury was selected as President The honorary treasurer (Sir William Hale White) and the honorary secretary (Dr H Morley Fletcher) were re elected the latter having recently succeeded Sir Wilmot Herringham, who has retired from office to the great regret of the members The Executive Committee consists of these officers and of Drs Charles T R Elliott W Pasteur, and Professors Arthur J Hall and J Russell representing England Dr Francis Boyd and Professors Ashley Mackintosh and R Stockman to represent Scotland with Drs J E MacIlwaine, Gilman Moorhead and G Peacocke to represent Ireland Birmingham was selected as the place of meeting for next year The meeting was in every respect a successful one but the rules of the Association preclude any report of the proceedings Special thanks were accorded to the local honorary secretary, Dr A Ramsbottom who had made excellent arrangements for the comfort of the visiting members

THE MEDICAL DEFENCE UNION INCREASE OF SUBSCRIPTION —At a special general meeting of the Union held at the Medical Society of London 11, Chandos street London, W on May 20th the following resolutions were carried —

> That on and after the 1st January 1921 the annual subscription to the Medical Defence Union shall be £1 which payment shall provide each member with indemnity against damages and costs awarded against him to the extent of £2500 in any case which is undertaken on behalf of the member by the Medical Defence Union and that a member elected on or after the 1st July in any year shall pay half the current subscription for that year
>
> That the fee for life membership shall remain at £25 which payment shall include all the benefits of the indemnity on and after the 1st January 1921 Life members who have compounded for a less sum and are still in practice shall be asked to pay a subscription of 5s per annum to cover the indemnity

Newly registered medical practitioners will be admitted to membership on and after Jan 1st 1921, without payment of an entrance fee provided that they join the Union within one year of the date of their registration

VITAL STATISTICS FOR CALCUTTA —The total number of deaths registered in Calcutta during the week ending April 10th was 716 against 707 and 667 in the two preceding weeks, and lower than the corresponding week of last year by 315 These are the figures given by Dr H M Crake health officer There were 64 deaths from cholera against 48 and 47 in the two preceding weeks the number is lower than the average of the past quinquennium by 57 There were 13 deaths from plague against 4 and 3 in the two preceding weeks, the average of the past quinquennium being 19 There were 80 deaths from small pox during the week against 114 in the previous week There were 30 deaths from influenza against 36 in the previous week The mortality from fevers and bowel complaints amounted to 55 and 70 respectively, against 70 and 71 in the preceding week The general death rate of the week was 41 6 per 1000 per annum, against 37 4 the mean of the last five years There were 45 imported deaths Excluding these the death rate of the city was 38 1 There were 160 deaths from respiratory diseases against 150 in the previous week

GENERAL REGULATION IN AUSTRIA OF MEDICAL FEES —One of the chief aims of the medical organisation in Austria has been achieved within the last few weeks in the approval of the new schedule of medical fees by the medical council elected for this purpose The system now in force provides for the differences of the cost of living in towns or in the country, as the value of money is quite different according to the place in which the doctor resides The scale will rise from a minimum of five times the sum charged before the war Thus the minimum fee payable for a call at the patient's house in Vienna will be 30 kronen in daytime and 100 at night This sounds much, but is really very little, as its buying value is not more than about 1s. and 3s. respectively. Of course, this minimum fee is to be charged only to the poorer classes of patients, the wealthy being expected to pay more. Still, the impoverishment of the people has attained such a degree that the profession will have much difficulty in obtaining fees corresponding to the general rise of food prices. One feature of the scale recommended for general adoption is the relation between the minimum fees of the general practitioner, the better qualified man (privat-docent or specialist), and the professor as 1 : 2 : 4. These figures are also meant to be a minimum. Every medical or surgical interference besides a simple examination—i.e., a hypodermic injection, the washing out of an organ, the application of a bandage, or the instillation of drops—is to be charged for extra.

CENTRAL MIDWIVES BOARD.—A special meeting of the Central Midwives Board was held at Queen Anne's Gate Buildings, Westminster, on May 20th, with Sir Francis H. Champneys in the chair. Two midwives were struck off the roll, the following charges amongst others having been brought forward:—

1. Being in attendance at a confinement and the child suffering from dangerous feebleness the midwife did not explain that the case was one in which the attendance of a registered medical practitioner was required, as provided by Rule E. 21 (5); the child being in the condition aforesaid, she neglected to hand to the husband or the nearest relative or friend present the form of sending for medical help, properly filled up and signed by her, in order that this might immediately be forwarded to a medical practitioner or to an approved institution, as required by Rule E. 20; the death of the child having occurred before the attendance of a registered medical practitioner, the midwife neglected to notify the local supervising authority thereof, as required by Rule E. 22 (1) (b), and she neglected to take and record the pulse and temperature of the patient at each visit, as required by Rule E. 14.
2. The midwife did not enter her records of the pulse and temperature of her patients in a notebook or on a chart carefully preserved, as required by Rule E. 14. A child suffering from serious skin eruption during her attendance the midwife did not explain that the case was one in which the attendance of a registered medical practitioner was required, as provided by Rule E. 21 (5), and the patient suffering from a condition supposed to be infectious, the midwife neglected to send any notification to the local supervising authority of the fact, or that she was herself liable to be a source of infection, as required by Rules E. 6, E. 22 (1) (e), and E. 23 Form (e).

Parliamentary Intelligence.

HOUSE OF LORDS.

National Health Insurance Bill.

ON Monday, May 17th, on the motion of Viscount ASTOR, the National Health Insurance Bill was read a second time. On May 18th, on the motion that the House do go into Committee on the National Health Insurance Bill, the Marquess of SALISBURY complained that the Bill, which contained 21 clauses, most of their legislation by reference, had been rushed through the Standing Committee at one sitting and passed the Report and Third Reading stages in the House of Commons at an all-night sitting. Was it possible to treat Parliament with greater contempt? He moved the adjournment of the debate in order to hear what explanation the Government had to offer.—Viscount ASTOR said the Bill was most urgent. Over 2,000,000 cards had to be filled in, registered, and distributed among the Approved Societies, and unless that were done immediately it was impossible for those societies to be ready by July 1st, when the next half-yearly contributions were due. In addition to that, if the Bill were not passed before Whitsuntide a serious additional burden would be laid upon the Treasury. —The Marquess of SALISBURY, in withdrawing his motion, said he hoped that the proceedings that afternoon would convince the Government that they were no longer to assume that the House of Lords would always be ready to pass Bills sent up from the Commons at the very last moment.—The Bill passed through Committee, was read a third time, and passed. The Bill received the Royal Assent on Thursday, May 20th.

HOUSE OF COMMONS.

MONDAY, MAY 17TH.

Medical Services in the Navy.

The House went into Committee of Supply on the Navy Estimates for 1920-21, Sir E. CORNWALL in the chair. On a vote of £677,300 for the expense of medical services, including the cost of medical establishments at home and abroad,

Sir D. MACLEAN said there could be no doubt at all that the Committee welcomed any further efficiency, and, indeed, any reasonable addition to the cost of the medical services of the navy; but he would point out that, while the numbers to-day were identical with those in 1912-13, the cost had risen from £279,000 in the latter year to £677,000 in this Vote. He knew that the prices of medical stores had soared almost beyond the range of percentages, but on the question of numbers he did wish to elicit some information. As far as he could see on the medical establishments at home and abroad there had been this year no reduction at all in numbers. While under Vote A the number of officers and men for the Royal Navy had fallen from 225,000 to 126,000, on the medical establishment there had been no corresponding reduction. Why was it that they still required 3 surgeon rear-admirals, 8 surgeon-captains, 17 surgeon-commanders, and 43 surgeon-lieutenants? He noticed that there was some reduction in the nursing staff, and that the cost there had gone down from £34,300 last year to £30,700 this year. But there was a greater charge for the rear-admirals, whose numbers were diminished, of £50. There was a slight increase in the charge for surgeon-captains, while that for surgeon-commanders had risen from £16,900 to £18,400.

Sir T. BRAMSDON complained that certain unqualified ratings were actually placed in charge of hospital wards in order to allow leave to members of the staff. He also asked if the Medical Director-General had yet paid a visit to the Royal Naval Hospital at Haslar to see what the situation was there.

Lieutenant-Colonel KENWORTHY said in 1919-20 they voted a sum of £9500 on account of the expenses of two hospital ships; this year the sum was £40,270. He suggested that these hospital ships might well be employed in assisting the army to bring home sick British soldiers from Egypt. If they were employed on any other service which prevented them from doing that, and which was not a purely British naval service, the Committee ought to be informed.

Sir J. CRAIG (Financial Secretary to the Admiralty) said they were getting back—slowly in some cases, more rapidly in others—to what they hoped would be a satisfactory state of finance, but it could not be done suddenly. They had still on hire at the moment two hospital ships, which they were going to replace, probably by purchase. Where their services were required, there those ships should be in accordance with naval policy. In reply to Sir D. Maclean, he might say that the personnel afloat was paid for out of Vote 1 and not out of Vote 3, but he admitted that something might be done to make the estimate a little clearer in this respect, and he would promise to meet his right honourable friend's wishes with regard to that. In reply to Sir T. Bramsdon, if a visit by the Director-General to examine into the affairs at Haslar Hospital was necessary it would be arranged as soon as possible.

Viscount CURZON said that before the war the position of hospital ships in the navy was not very satisfactory, and he hoped that a definite policy would be laid down with regard to them. He had noticed that in certain naval depôts and naval establishments the medical staff had certain periods when they had very little to do. He commended the suggestion to the First Lord that where possible naval medical officers should be allowed to attend on the wives and children of the men.

Sir D. MACLEAN said that the Vote as it stood was really incomprehensible, and he suggested that it should be withdrawn.

Sir J. CRAIG: No. Sir J. Craig said he would have the matter set right in the White Paper which he proposed to have prepared before the Report stage.

Dr. M'DONALD much regretted to find opposition to grant the necessary amount towards the expenditure on the medical services of the navy. Very frequently they had found in the past that the medical services in this country were utilised to a very large extent for the benefit of the nation more than for the benefit of the medical profession. He was sorry to hear the suggestion that naval medical officers should be asked to attend the families and children of the members of the Service. It had been suggested that many medical men were very often found with insufficient work. He had known some officers in the navy who had a considerable amount of time at their disposal as well as medical men. As to the increase of cost, many honourable Members did not realise the enormous increase in the cost of medicine and surgical appliances.

Mr. ACLAND said when he was Financial Secretary to the War Office he found there was no department in which it was more difficult to reduce expenses than the medical and nursing department. The Vote was agreed to.

TUESDAY, MAY 18TH.

Effect of the War on European Populations.

Mr. ALLEN PARKINSON asked the Under Secretary for Foreign Affairs whether he could issue a White Paper showing the best available information as to the effect of the war upon the populations of the various European countries, particularly the number of war casualties and other deaths and the decline in the number of births.—Mr. HARMSWORTH replied: I understand from the authorities in this country who study these matters that there is not yet sufficient information available to render it possible to contemplate the issue of a White Paper on the subject. A series of publications have, I believe, been prepared by a Danish writer, Mr C Doring, and copies have been obtained by the Royal Statistical Society, who would, doubtless, be pleased to permit the honourable Member to consult them on application

Exports of Morphia

SIR R HORNE (President of the Board of Trade) circulated the following statement of the recorded exports of morphia, which, he regretted, did not include exports through the post, particulars of which are not available:—

Statement showing the Quantity and Value of "Morphia and Morphia Salts, the Manufacture of the United Kingdom Exported from the United Kingdom to Each Country of Destination During the Year Ended Dec 31st, 1919 (Exclusive of Exports by Post)

Countries of destination	Quantity, ounces	Value, £	Countries of destination	Quantity, ounces	Value, £
Foreign Countries			San Salvador	19	23
			Panama	30	39
Russia	4,745	6 077	Venezuela	193	170
Sweden	1,192	1,434	Peru	4	6
Norway	176	175	Chile	1,007	1 583
Denmark*	484	794	Brazil	2 286	3,117
Germany	384	319	Argentine Republic	3 823	5,329
Netherlands	460	403			
Belgium	15 088	14 587			
France	140 873	155 617	Total	302,733	314 948
Switzerland	2 784	3 161			
Portugal	206	268	*British Possessions*		
Spain	222	411			
Italy	508	699	Egypt	40	56
Austria Hungary	144	131	Union of South Africa	173	167
Greece	15	17	British India	530	753
Persia	7	14	Hong Kong	61	67
Siam	4	12	Australia	897	874
China†	164	322	New Zealand	35	40
United States of America	121 474	114 587	Canada	18 501	19 956
Cuba	6 025	5 196	Total	20 237	21 913
Mexico	416	457			
Total to Foreign Countries and British Possessions				322 970	336 861

* Including Faroe Islands
† Exclusive of Hong Kong Macao and leased territories

Improved Conditions of School Children

MR HURD asked the President of the Board of Trade if he would cause to be collated and issued at the earliest possible moment for the information of the public the evidence upon which he based his statement that the children in public schools were better fed and better clothed than in the years before the war, that there were fewer free meals needed for badly nourished children than ever before, and that in these respects, as in that of unemployment, a marked improvement had taken place in the general condition of the wage earning community —SIR R HORNE replied· As regards the feeding of school children, the most recent report of the chief medical officer of the Board of Education published in 1919 gives on p 175 a table which shows that for the year 1918-19 the number of school children fed by local education authorities under the provisions of the Education (Provision of Meals) Act, 1906, was 52,490, as compared with 156,531 in 1913-14 and 358,306 in 1912-13 As regards improvement in the clothing of school children, there is no published information for the country as a whole, but I would refer to the statement made by the school medical officer for London on p 13 of the report to which I have referred, in which he says that in 1918 the number of children found insufficiently clad was less than half the number discovered in 1913 I understand that the general impression gained by the inspectors of the Board of Education has been that a similar improvement was to be found in other parts of the country As to unemployment there is less at the present time than in an average pre war year The percentage of trade union members reported as unemployed in January, February, and March, 1920 were 2 9 per cent, 1 6 per cent, and 1 1 per cent respectively In 1919 the mean annual trade union percentage of unemployed was 2·4 per cent, whilst during the last 40 years (excluding the war period) the mean annual percentage has only once fallen as low as 2 per cent, and on only four other occasions was it lower than 2 5 per cent —MR HURD Will the right honourable gentleman say when we can have information for later years? —SIR R HORNE I have given the latest figures with regard to unemployment With regard to the feeding of school children I have not the exact figures, but I am informed that what the school inspectors have to say on the subject bears out what is said in the report of 1918

WEDNESDAY, MAY 19TH

Opium Cultivation in India

MR GILBERT asked the Secretary for India if he would state the acreage under opium cultivation in India for each year from 1914 to 1919, the amount and value of opium produced in and exported from India in each year from 1914 to 1919, which were the countries this exported opium was consigned to, and the amount and volume of opium consigned to each country, respectively —MR MONTAGU circulated the following statements (A and B) —

(A) *Statement showing the Area under Poppy (in Acres) and the Outturn therefrom (in Maunds of 82⁴⁄₇ lb) in British India, 1913 14 to 1916 17*

Year	Area under poppy (acres)	Outturn in Maunds (1 Maund = 82⁴⁄₇ lb)
1913 14	144,561	24 292
1914–15	164 911	28 293
1915 16	167 155	27 001
1916 17	204,186	32 124

(B) *Statement showing the Quantity (in Chests), and Value (in Rupees) of Opium Exported from India 1913–14 to 1918–19*

Countries of final destination	Quantity (in Chests) 1913 14	1914–15	1915–16	1916–17	1917 18	1918–19
Exports on Private Account						
United Kingdom	115	498	199	—	—	—
Ceylon	106	80	65	80	60	70
Straits Settlements	1 537	755	605	239	385	152
Hong Kong	3 821	1 000	734	450	450	545
China (excluding Hong Kong and Macao)	90	—	—	—		—
Macao	150	—	—	50		
Japan	799	900	1 080	963	971	1 936
Formosa	—	—	—	200	—	—
Indo-China	875	2 690	2 035	3 440	3 050	3 440
Java	3 265	2 650	1 835	1 965	1 800	2 400
Siam	1 130	2 000	1 700	1,200	1,650	1,750
British Borneo	—	—	—	—	20	130
Mauritius and Dependencies	19	23	65	120	15	42
Mexico	—	245	460	—		—
Other countries	—	15	8	3	7	2
Total	11 906	10 856	8,786	8 710	8 408	10 467
Exports on Government Account *						
United Kingdom	—			—	3 061	2 400
Hong Kong Straits Settlements, &c †	—	—	—	—	5 191	4 411
Total	—	—		—	8 245	6 811
Grand total	—	—	—		16 653	17 278

Countries of final destination	Value (in Rupees) 1913–14	1914–15	1915–16	1916–17	1917 18	1918 19
Exports on Private Account						
United Kingdom	2 76 650	8 72 225	3 61 500	—	—	
Ceylon	2.37 675	1 91 150	1 11.350	2 27 575	1 95 350	2 47 050
Straits Settlements	33 97 505	12 08 575	10 17 250	5 91 025	12 45.335	4 98 360
Hong Kong	1 62 61 387	16 60 685	11 87 330	7 21 175	11 66 575	17 59 470
China (excluding Hong Kong and Macao)	4 17 500	—				
Macao	2 74 425	—	—	85 750	—	
Japan	17 98 700	15 09 875	18 08.250	23 83 070	29 39 300	64 49 355
Formosa	—	—	—	4 32 400	—	
Indo-China	19 42 525	43 71.373	33 50 650	81 90 395	94 08 665	1 14 90 975
Java	70 82 975	42 33 775	31 20 800	51 29 650	45 00 000	60 00 000
Siam	24 60 450	30 64 925	28 37 450	28 67 700	45 01 450	43 74 900
British Borneo	—	—	—	—	50 000	3 25 000
Mauritius and Dependencies	50 670	43 275	1 09 545	3 25 195	48 450	1 34 315
Mexico	—	4.52 775	7 79.575	—		
Other countries	—	25 950	18 140	8 245	22 170	7 200
Total	3 42 00 462	1 76.34 585	1 47 01 840	2 09 65 180	2 40 77 345	3 12 90 7[illegible]0
Exports on Government Account *						
United Kingdom		—			25 11 147	20 11 230
Hong Kong Straits Settlements, &c †	—		—	—	1 03 8[illegible] 000	87 13 9[illegible]
Total	—				1,28 9[illegible] 147	1 07 25 22[illegible]
Grand total		—		—	3 60 7[illegible] 4[illegible]2	4 20 15 97[illegible]

* Exports of opium on Government Account were not separately recorded previous to the year 1917 18
† Shipped direct to the Governments of Hong Kong, the Straits Settlements, and other East Indian Governments

Increases of Pay in Indian Medical Service.

Mr. Montagu (Secretary for India) informed Mr. Lunn that the approximate cost per annum of the recent increases of pay sanctioned for the Indian Medical Service was £250,000.

Medical Officers in Southern and Northern Nigeria.

Earl Winterton asked the Under Secretary for the Colonies if he would state what steps were being taken to deal with the serious shortage of medical officers in the service of the Southern and Northern Nigerian governors.—Colonel Wilson replied: Steps are being taken to revise the salaries of officers of the West African Medical Staff, and when the new salaries are settled they will be brought to the notice of possible candidates, but there is a great dearth of medical men at the present time.—Earl Winterton: Can my honourable and gallant friend inform the House what steps are being taken at the present time to deal with the situation out there? Is he aware that officials are dying for want of medical care?—Colonel Wilson: I am informed that the position is well known to the Colonial Office. The new scale of salaries will be issued very shortly now.

Dental Mechanics.

Sir Thomas Bramsdon asked the Financial Secretary to the War Office whether he was aware that the naval authorities employed unenlisted dental mechanics at trade rates; and was he prepared to employ discharged soldiers, dental mechanics, at trade rates in order to obviate the necessity of these men drawing unemployment pay, and thereby to do for them what the Government was urging private firms to do for discharged soldiers.—Sir A. Williamson (Financial Secretary to the War Office) replied: The military commands at home have been authorised to employ civilian dental mechanics at local rates where the services of such are necessary and where no enlisted dental mechanics of the Royal Army Medical Corps are available.

Sir Thomas Bramsdon asked the Financial Secretary to the War Office whether, in view of the number of unemployed discharged soldiers who were dental mechanics, it was necessary to inaugurate a costly scheme of training for this purpose.—Sir A. Williamson replied: In spite of special efforts which have been made to recruit dental mechanics, the numbers that have come forward are inadequate to meet the needs of the army. The course of training for recruits which has been instituted is carried out at the dental workshops already in existence, and there is no intention of inaugurating a costly scheme.

Compensation for Poor-law Officers.

Dr. Addison informed Mr. Briant that the Bill which he proposed to introduce for the reform of the Poor-law would contain provisions dealing with the compensation of Poor-law officers.

Medical Boards at Manchester.

Major Nall asked the Minister of Pensions whether he was aware of the increasing delays in arranging medical boards arising from the regional headquarters, Manchester, and that in consequence a large number of distressing cases were accumulating; and what steps he was taking to adjust the inconvenience and hardship thereby caused.—Major Tryon replied: My right honourable friend is not aware that there is general delay such as is referred to in the first part of the question; but if the honourable Member can supply instances of delay in particular cases I shall be glad to make inquiries. As regards the latter part of the question where the circumstances are such that a medical examination cannot be arranged in time to prevent an interruption in the award, arrangements are made to continue for a short period the expiring pension.

Thursday, May 20th.

Venereal Disease Statistics.

Captain Elliot asked the Secretary for War whether he could give the case-rate per 1000 of venereal disease amongst the British army in the United Kingdom, France and Flanders, and Germany (occupied territory) in the years 1918, 1919, and the first quarter of 1920.—Mr. Churchill replied: The approximate rates per 1000 of admissions for venereal disease are as follows:—

	Ratio per 1000 per annum.		Ratio per 1000 first quarter.
	1918.	1919.	1920.
United Kingdom	43	59	14·8
France	32	67	40·5
Army of the Rhine	—	46	42·3

The ratios for 1919 and 1920 are to a large extent fallacious owing to rapid demobilisation. There has been a rise in the incidence of venereal disease amongst the troops in France and Germany, but I am glad to say that the latest information shows some improvement.

Soldiers' Artificial Limbs.

Major Cohen asked the Minister of Pensions if he would state how many limbless soldiers had already been provided with their second artificial limb; and how many such soldiers were still waiting for the said limb; and whether it was his intention to provide boots free of charge in perpetuity to fit the artificial limbs of legless soldiers.—Major Tryon replied: It was not found possible to commence the supply of duplicate artificial limbs until last October, when the supply of first limbs had been practically completed, but on April 16th 5213 limbless soldiers had been supplied with duplicate limbs. There are in all about 32,000 men not provided with duplicate limbs, but not the whole of this number can be stated to be "waiting." The large majority of men are in employment, and will only attend fitting centres at a time convenient to themselves. Moreover, in a large majority of short stump-arm cases the men prefer not to wear an artificial limb; and there are cases of recent amputation not yet ready for fitting. Unless there is special urgency, cases are dealt with in rotation according to the date of supply of the first limb. As the artificial legs supplied by the Ministry are so made that an ordinary boot can comfortably be worn, I am not clear that there is any reason why boots should be supplied at the public cost.

Pensioners and Institutional Treatment.

Mr. Kiley asked the Minister of Pensions whether, in the case of ex-soldiers suffering from nerve strain who were considered to require institutional treatment, any part of their pension went to the institution providing the treatment; if so, how much; and, if the patient refused treatment, would any portion of the pension be forfeited.—Major Tryon replied: The answer to the first part of the question is in the negative. The charges made by the institution are defrayed by the Ministry. I may, however, explain that a discharged soldier under institutional treatment does not draw pension, but is maintained free of charge and receives allowances which are generally at the rate of 21*s.* per week with additions for rank and dependents. As regards the second part of the question, pension may be reduced by one-half or less if treatment certified to be necessary in the man's interests is unreasonably refused. Every case is considered on its individual merits.

Government Publications on the Use of Alcohol.

Captain Bowyer asked Mr. Chancellor of the Exchequer whether his attention had been called to an official-paid circular issued by His Majesty's Stationery Office, with an order form attached, relating to a publication entitled Alcohol: its Action on the Human Organism, issued by the Central Control Board (Liquor Traffic) under the chairmanship of Lord d'Abernon; why this publication was advertised at the public expense; whether he could point to any other official publications with regard to which similar methods of advertisement had been adopted; and would he state the number of these circulars that had been sent out.—Mr. Baldwin (Secretary to the Treasury) replied: My attention has been called to the circular to which my honourable and gallant friend refers. The publication in question is advertised at the public expense because it is a Government publication; and the method of advertisement used in this and other similar instances to which I could refer has been adopted as being in certain cases the most effective means of calling public attention to official publications. In this case about 40,000 circulars were sent out to all British medical practitioners, the total cost for the printing, address, and dispatch of the circulars amounting to about £60. The receipts already exceed this sum.

The late Dr. S. R. Savage, of Pretoria.—Dr. Savage died at Pretoria on April 27th. Born at Welteroreden, Rondebosch, a suburb of Cape Town, the deceased was educated at the Diocesan College, Rondebosch, at the Cape University, where he took his degree of arts, and subsequently qualified M.B., C.M. Edinburgh in 1886. On returning to South Africa Dr. Savage was for a time principal medical officer at Maseru, Basutoland, and later went into partnership with Dr. Clarke, of Bloemfontein. At the conclusion of the Boer War Dr. Savage went to Pretoria at Lord Kitchener's special request. Later he was appointed railway medical officer, and held this post until his death, in addition to a successful general practice at Pretoria, where he was accounted an obstetrician of special skill and merit. Dr. Savage was senior visiting physician to Pretoria Hospital and a member of the Asylum Board and of the Victoria Cottage Hospital Committee. At one time he was president of the Pretoria Branch of the British Medical Association. His publications include articles on Intra-orbital Periostitis and on Leprosy in British Basutoland in the *Cape Medical Journal* in 1893 and 1895 respectively. Dr. Savage gave his services generously to the community. He was a member of the first town board of Pretoria, subsequently a town councillor, and in 1908 he was mayor of the capital. He was one of the earliest presidents of the Victoria Cross Lodge of the Order of the Sons of England and a member of the Transvaal Lodge of Freemasons. Dr. Savage married a daughter of the late Bishop Bousfield and is survived by his widow and a large family.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication*

DENT, PATRICIA, M B , B S Lond , has been appointed Assistant Medical Officer for Maternity and Child Welfare and Assistant to the School Medical Officer for the County Borough of Wolverhampton

RIGBY, R A C, L R C P & S Edin , Honorary Medical Officer in charge of the X ray and Electro Therapeutic Department at the General Hospital, Nottingham

RYLAND, A, F R C S Edin , Oto-Laryngologist to the Whipps Cross Infirmary, Leytonstone

Certifying Surgeons under the Factory and Workshop Acts **DONALD, D A**, M B , Ch B Edin (North Berwick), **CHRISTIE, J C** M B , Ch B Glasg (Tarbert), **GARDINER, D G**, M B , Ch B Glasg (Stonehaven), **WARD SMITH, W**, M D Edin (Shipley)

Vacancies.

For further information refer to the advertisement columns

Aberdeen University —Lecturer in Anatomy £400
Aylesbury, Royal Buckinghamshire Hospital —H S £200
Bath, Royal Mineral Water Hospital —Res M O £250
Bath, Winsley Sanatorium —Sen Res M O £500
Bermondsey Infirmary, Lower road, Rotherhithe, S E —Sec Asst M O £400
Bethnal Green Infirmary, Cambridge road, Bethnal Green, E —Asst M O s £325 Jun M O £300
Bethlem Royal Hospital, Lambeth road, S E —Senior Asst P £600
Birmingham Union, Dudley road Hospital —Res Asst M O £365
Bolingbroke Hospital, Wandsworth Common, S W —H S £150,
Bradford Children s Hospital —H S £200
Brighton, Hove and Preston Dispensary —Res M O £200
Bristol General Hospital —Cas H S £175
Brookwood, Surrey County Mental Hospital —Jun M O £400
Burnley Union —Res M O £400
Bury and District Joint Hospital Board —Res Asst Med Supt £450
Bury St Edmunds West Suffolk General Hospital —H S £200
Canning Town Women s Settlement Hospital, Balaam street, Plaistow, E —Female Res M O £150
Carlisle, Cumberland Infirmary —H P £250
Central London Ophthalmic Hospital, Judd street, W C —Asst S
Chester County Asylum —Third Asst M O £350
Chesterfield and North Derbyshire Royal Hospital —Hon P
City of London Maternity Hospital, City road E C —Res M O £100
Coventry Education Committee —Asst Sch M O £500
Dorset County Asylum, near Dorchester —Sec Asst M O £380
Dumfries, Crichton Royal —Asst P £500 to £400
Durham County Council, Maternity and Child Welfare —Female Asst Welfare M O £500
East Riding Education Authority —Female Asst Sch M O £500
Enham Village Centre for Disabled Ex Service Men, near Andover, Hants —Asst Med Direct £500
Evelina Hospital for Children, Southwark, S E —Hon Clin Assts
Great Northern Central Hospital, Holloway road, London, N —Res M O £250
Halifax Royal Infirmary —H S £200
Hampstead General and North West London Hospital, Haverstock Hill, N W —H P , Cas S O , Cas M O £150 each
Hospital for Sick Children, Great Ormond street, W C —P
Huddersfield Royal Infirmary Sen H S. £250
Hull Royal Infirmary —Sen H S £200 Asst H S £150 Asst V D Officer and Cas £250
Ipswich County Borough —Asst M O H £500
Italian Hospital —H S £150
Johannesburg, South African School of Mines, &c —Professorships of Med , Surg , and Obstet £730 each Professor of Pharm £1000
Kirkburton, Storthes Hall Asylum, near Huddersfield —Asst M O £400
Lanark County —Asst M O H and Asst Tuberc O £550
Lancashire County Council —Two Asst Disp Tuberc O s £700,
Leeds Public Dispensary —Res M O £200
Lindsey County Council —Female Asst M O £550 Also Asst Tuberc O and Asst Sch M O £550
Liverpool, David Lewis Northern Hospital —H P £150
London Lock Hospital and Home 283, Harrow-road, Paddington, W , and 91 Dean street, Soho W —Hon Dent S 25 guineas
Manchester Children's Hospital, Pendlebury, near Manchester —Res M O £150
Manchester City —M O £450
Manchester Royal Infirmary —H S s
Manchester Royal Eye Hospital —Jun H S £120
Middlesbrough, North Ormesby Hospital —Asst H S £200
Middlesex Hospital —Asst S
Miller General Hospital for South East London, Greenwich road, S E —Sen Res M O £350 M O X ray Dept £75 Also Hon Asst Ophth S
Newcastle-upon-Tyne City and County —Maternity and Child Welfare M O £700
Newcastle-upon-Tyne, Hospital for Sick Children —Jun Res M O £200
Northallerton, North Riding of Yorkshire County Council.—Chief Clin Tuberc O £700
Northampton General Hospital —H S and H P £200 each
Nottingham City Asylum —Second Asst M O £400
Nottingham Children s Hospital —Female Res H S £200.
Nottingham General Hospital —H P Also Cas H S £200 each
Portsmouth Royal Hospital —H S 's £150
Queen s Hospital for Children, Hackney-road, Bethnal Green, E —H S £100
Reading, Berkshire Education Committee —Asst Med Inspector of Schools £500 Sch Dent £450
Reading, Royal Berkshire Hospital —H S £200
Rhondda Urban District Council —Dent S 's £500
Rochdale Infirmary and Dispensary —Sen H S £200 Jun H S. £125
Rotherham Hospital —Jun H S £150
Royal Chest Hospital, City-road, E C —M O in X ray Dept 25 gs
Royal Institute of Public Health, 37, Russell Square, W C —Lecturer and Demonstrator of Bacteriology £500
Royal Veterinary College, Camden Town —Chair of Anatomy £600
Russian Red Cross, 35, Albemarle-street —Two M O 's £800
St Mary s Hospital, Paddington —Secretary £800
Salford Royal Hospital —Hon Dermatologist
Sheffield City —Asst Tuberc O £500
Sheffield Royal Hospital —Asst Cas O £150
Sheffield Royal Infirmary —H P, and H S £150 each
Shirlett, near Much Wenlock, King Edward Memorial Sanatorium —Res Med Supt £450
South Infirmary, Pancras road, N W —Female Asst Med Supt and Asst M O £300
South London Hospital for Women, South Side, Clapham Common, S W —Female H P £100 Also Anæsth 10s 6s per attendance
Staffordshire General Infirmary, Stafford —H S £250
Stamford, Rutland and General Infirmary, Stamford —H S £200
Stockport Infirmary —Jun Res M O £200
Swansea County Borough —Asst M O £500
Truro, Tehidy Sanatorium —Res M O £300
Victoria Hospital for Children, Tite-street Chelsea, S W —Sen Res M O £250
Walsall General Hospital —Female H S and Anæsth £175
Weir Hospital, Grove-road, Balham, S W —Res M O £200
West Bromwich and District Hospital —Res H S £200
West Ham County Borough —Asst School M O £450
Wolverhampton and Staffordshire General Hospital —H S £200 Also Res M O £200

The Chief Inspector of Factories, Home Office, S W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Garstang, Frome, Uttoxeter, Tooting, and Redditch

Births, Marriages, and Deaths.

BIRTHS.

BOND —On May 1st, at Villa Sol, St Jean-de Luz, S France, the wife of Dr C Shaw Bond, of a daughter

DAY —On May 19th, at St James s Court, S W , the wife of Bernard Day, M D , of a premature son, stillborn

JEFFREY —On May 24th, at Glenbank, Jedburgh, the wife of John Jeffrey, M B , F R C S E , of a son

STATHAM —On May 21st, at a nursing home, the wife of Dr R S S Statham, O B E , of Ormlie, Clifton Down road, Clifton, Bristol, of a daughter

DEATHS.

ROBERTS —On May 20th, at Guy s Hospital, Ernest Roberts, M B , M Ch , D P H , Lieutenant Colonel, I M S (retired)

N.B —A fee of 7s 6d is charged for the insertion of Notices of Births, Marriages, and Deaths

Communications, Letters, &c., to the Editor have been received from—

A.—Mr W Abbatt, Tarrytown, N Y

B —Dr A E Brindley, Derby, Mr J O Butcher, Lond , Mr L W Blumenthal, Brooklyn, Messrs Butterworth and Co , Calcutta, Dr R R S Bowker, Pontnewydd Mr C F Bailey, Brighton, Prof W B Bell, Liverpool, British Science Guild, Lond , Mr F J C Broome, Harrogate

C.—Mr G Chubb, Lond , Sir J Crichton Browne, Lond , Prof E L Collis Cardiff, Dr D E Core, Manchester

D —Dr S Davies, Lond , Lt Col A M Davies, Lond , Prof S T Darling, S Paulo, Brazil Dr J P Davin, New York, Prof L S Dudgeon, Lond

F —Dr Fraipont, Liége

H —Dr A K Henry, Dublin, Mr W Hayward, Lond , Mr J T Henderson, Pietermaritzburg

I —Dr F C B Ibotson, Corris; Ivory Cross, Lond , Insurance Committee for the County of London Illuminating Engineering Society, Lond

J.—Dr R Jardine, Glasgow, Capt G G Johnstone, R A M C (T F)

K —Dr A I b Kent, Manchester, King s College Hospital Medical School, Sec of

L.—Dr J H Lloyde, Bedford, Dr E Lowry, Lond , Sir R Luce, Derby

M.—Ministry of Health, Lond , Dr O May, Lond , Prof C J Martin, Lond , Dr W E Masters, Seccondee, W Africa, Dr C F Marshall, Lond , Medical Defence Union, Lond , Sec of, Mr I E R McDonagh, Lond , Dr A C Magian, Manchester

N —National Council for Combating Venereal Diseases, Lond

P —Panel Committee for the County of London Mr H S Polak, Lond , Dr D S Pracy, Atherstone, Capt A E H Pinch, Lond

R.—Royal Society, Lond Dr R P. Rowlands, Lond Royal Institution of Great Britain, Lond ; Mr G Q Roberts, Lond , Royal College of Physicians of Edinburgh, Dr. J W Rob, Weybridge

S —Sells, Ltd , Lond , Save the Children Fund, Lond , Messrs Siemens Bros and Co , Lond , Society for the Relief of Widows and Orphans of Medical Men, Lond , Société des Sciences Médicales et Biologiques de Montpellier

T —Dr F I Tylecote, Manchester Dr W L Tanner, Lond

U —United Press Association of Liverpool

W.—Dr H M Woodcock, Lond , Col Sir Edward Ward, Lond , World Trade Club, San Francisco, Dr C Westman, Lond

Communications relating to the editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, London, W C. 2

Medical Diary.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.
THURSDAY, June 3rd.—4.30 P.M., Bakerian Lecture: Sir Ernest Rutherford: The Nuclear Constitution of the Atom.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Monday, May 31st.

ODONTOLOGY (Hon. Secretaries—G. Paton Pollitt, W. Kelsey Fry, J. Howard Mummery): at 8 P.M.
Annual General Meeting—Election of Officers and Council for 1920–1921.
Casual Communications by—
Mr. J. G. Turner, Mr. J. Harborow, Mr. Watson Turner, Mr. Pitman.
Paper:
Mr. Charles A. Clark: Relation of Teeth to the Floor of the Antrum (illustrated by radiographs and lantern slides).
Members of other Sections are invited to attend.

Tuesday, June 1st.

PSYCHIATRY (Hon. Secretaries—Bernard Hart, G. F. Barham): at 8.30 P.M.
Annual General Meeting—Election of Officers and Council for 1920–1921.
Paper:
Dr. David Forsyth: Psycho-analysis of a Case of Early Paranoid Dementia.

Thursday, June 3rd.

OBSTETRICS AND GYNÆCOLOGY (Hon. Secretaries—J. S. Fairbairn, Herbert Williamson): at 8 P.M.
Short Communications:
Dr. Philip Turner: Traumatic Rupture of the Pedicle of a Sub-peritoneal Fibroid.
Dr. Ford Anderson: A Case of Rupture of the Uterus.
Dr. Fletcher Shaw and Dr. Burrows: Radical Cure of Advanced Carcinoma of the Cervix made possible by the Application of Radium.
Specimen:
Dr. A. W. Bourne: A Specimen of Spontaneous Rupture of the Uterus Due to the Use of Pituitrin.
Paper:
Mr. Gordon Ley: The Pathology of Accidental Hæmorrhage.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.
MONDAY, May 31st.—12.15 P.M., Dr. Burnford: Pathological Demonstration. 5 P.M., Mr. D. Armour: Subphrenic Abscess.
TUESDAY.—10 A.M., Mr. Steadman: Dental Department. 5 P.M., Dr. R. J. Reece: Public Health.
WEDNESDAY.—2 P.M., Mr. Addison: Operations. 5 P.M., Dr. Owen: Irregularities of the Pulse, their Clinical Significance.
THURSDAY.—10.30 A.M., Dr. Simson: Gynæcological Demonstration. 5 P.M., Mr. Baldwin: Practical Surgery.
FRIDAY.—2 P.M., Mr. Banks Davis: Diseases of the Throat, Nose, and Ear. 5 P.M., Mr. MacDonald: Senile Enlargement of Prostate.
SATURDAY.—10 A.M., Dr. A. Saunders: Medical Diseases of Children. 12 noon: Mr. Sinclair: Surgical Anatomy of the Abdomen.
Daily:—10 A.M., Ward Visits. 2 P.M., In-patient and Out-patient Clinics and Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
MONDAY, May 31st.—2.30 P.M., Mr. J. B. Banister: Gynæcological.
TUESDAY.—9.45 A.M., Lieut.-Col. R. H. Elliot: Selected Eye Cases and Operations. 2.15 P.M., Selected Cases:—Mr. N. Fleming: External Eye Diseases. 3.15 P.M., Dr. Drinkwater: Methods and Apparatus for Anæsthesia in Dental Operations. 4.30 P.M., Dr. C. E. Sundell; Disturbances of Sleep in Children.
WEDNESDAY.—2.30 P.M., Dr. W. J. Oliver: Dermatological.
THURSDAY.—2.30 P.M., Mr. N. Fleming: Eye Cases. Dr. J. Metcalfe: Radiology.
FRIDAY.—2.30 P.M., Dr. C. E. Sundell: Diseases of Children.
SATURDAY.—3 P.M., Mr. Carson: Selected Surgical Cases.
Daily:—2.30 P.M., Operations, Medical and Surgical Clinics, &c.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C. 1.

MEDICAL SCHOOL.

MONDAY, May 31st.—2–3.30 P.M., Out-patient Clinic: Dr. Collier. 3.30 P.M., Mr. Paton: Visual Fields.
TUESDAY, June 1st.—2–3.30 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Dr. Risien Russell: Demonstration of Ward Cases.
WEDNESDAY, June 2nd.—2 P.M., Mr. Armour: Surgical Treatment of Tumours of the Spinal Cord. (II.) 3.15 P.M.
THURSDAY, June 3rd.—2–3.30 P.M., Out-patient Clinic: Dr. Farquhar Buzzard. 3.15 P.M., Dr. Greenfield: The Pathology of the Nerve Cell and Peripheral Nerves.
FRIDAY, June 4th.—2–3.30 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Dr. Hinds Howell: Demonstration of Ward Cases.
Fee for Post-Graduate Course £7 7*s*. C. M. HINDS HOWELL, Dean.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street, W.C.
Special Post-Graduate Courses in Diseases of Children, illustrated by cases, specimens, and radiograms.
Mr. A. T. Pitts: The Pathology, Results, and Treatment of Dental Sepsis in Children (in the Out-patient Department)—
WEDNESDAY, June 2nd.—4 P.M., Lecture III., The Diagnosis and Treatment of Dental Sepsis.
Dr. R. Hutchison: Disorders of Digestion and Nutrition in Childhood (in the Museum)—
THURSDAY, June 3rd — 11 A.M. Lecture I., Infant Feeding.
Dr. T. Thompson: Diseases of the Central Nervous System in Children (in the Museum)—
THURSDAY, June 3rd.—9.15 A.M., Lecture I., Functional Disorders of Childhood.
Dr. D. N. Nabarro: Methods and Significance of Pathological Investigations (in the Pathological Laboratory)—
FRIDAY, June 4th.—5 P.M., Lecture I., Examination of Blood:—Enumeration: Blood Culture.
Mr. T. Higgins: Common Surgical Disorders of the Naso-pharynx and Annexa in Childhood (in the Museum)—
THURSDAY, June 3rd.—5.15 P.M., Lecture I., Introductory. Naso-pharyngeal Adenitis.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland-street, W.
MONDAY, May 31st.—5.30 P.M., Post-Graduate Lecture:—Dr. R. Wells: The Electrocardiograph in Practical Medicine. (II.)

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON).
A Course of Post-Graduate Lectures on Syphilis is being given by various members of the staff of King's College Hospital during the present year.
FRIDAY, June 4th.—9.15 P.M., Dr. S. A. K. Wilson: Syphilis in the Nervous System. (I.)

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.
MONDAY, May 31st.—2 P.M., Dr. Melville: X Ray Department.
TUESDAY.—2 P.M., Dr. D. Grant: Throat Department. 2.30 P.M., Demonstration:—Dr. Wingfield: Cases Illustrating Onset.
WEDNESDAY.—10.30 A.M., Dr. Punch: Demonstration of Museum Specimens. 2 P.M., Dr. Gosse: Cardiographic Department. 2.30 P.M., Demonstration:—Dr. Young: Cases Illustrating Onset.
THURSDAY.—10.30 A.M., Dr. Burrell: Artificial Pneumothorax. 2.30 P.M., Demonstration:—Dr. Hartley: Cases Suitable for Artificial Pneumothorax.
FRIDAY.—2 P.M., Dr. Melville: X Ray Department. 2.30 P.M., Demonstration:—Dr. Burrell: Cases Suitable for Artificial Pneumothorax.
SATURDAY.—1 P.M., Dr. Batty Shaw: Special Demonstration in the Out-patient Department.

ST. MARYLEBONE GENERAL DISPENSARY, 77, Welbeck-street, Cavendish-square, W.
Post-Graduate Course on Infant and Child Welfare.
TUESDAY, June 1st, AND THURSDAY.—10.30 A.M., Dr. E. Pritchard: *Practical Demonstrations on the Management and Feeding of Infants and Young Children*—I., Causes of Infant Mortality; II., How to Establish an Infant Welfare Centre and Conduct an Infant Consultation.

UNIVERSITY OF LONDON.
Advanced Lectures in Physiology to Students of the University and others interested in the subject.
A Course of Eight Lectures on Nutrition will be given at King's College for Women (Household and Social Science Department), Campden Hill-road, Kensington, W.
MONDAY, May 31st, AND TUESDAY.—5 P.M., Lectures VII. and VIII.:—Dr. E. Mellanby.
A Course of Eight Lectures on the Bio-Chemistry of Sterols will be given in the Physiological Laboratory of the University, South Kensington, S.W.
TUESDAY, June 1st.—5 P.M., Lecture III., Mr. J. A. Gardner.

UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE POST-GRADUATE LECTURES, at the Sheffield Royal Hospital.
WEDNESDAY, June 2nd.—4 P.M., *Prof.* A. Hall: Diagnosis of Nervous Disease. (II.)

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.
TUESDAY, June 1st.—4.30 P.M., Lecture:—Dr. G. R. Murray: Examination of the Thyroid Gland and its Functions.

BOOKS, ETC., RECEIVED.

BALE, JOHN, SONS, AND DANIELSSON, London.
Essentials of Tropical Medicine. By W. E. Masters, M.D. Brux. Pp. 702. 42*s*.

FIFIELD, A. C., London.
A British Nurse in Bolshevik Russia. The Narrative of Margaret H. Barber. April, 1916–December, 1919. With a Foreword by the Rev. Harold Buxton. Pp. 64. 1*s*. 6*d*.

LONGMANS, GREEN AND CO. B. QUARITCH, DULAP AND CO. THE BRITISH MUSEUM (NATURAL HISTORY), London.
A Handbook of British Mosquitoes. By W. Dickson Lang, M.A., Sc.D. Pp. 194. £1.

MACMILLAN AND CO., London and New York.
The Narcotic Drug Problem. By Ernest S. Bishop, M.D., F.A.C.P. Pp. 165. 8*s*.
Pellagra. By H. F. Harris, M.D. Pp. 421. 26*s*.

MARCUS, A., AND WEBER, E., Bonn.
Säuglingskrankheiten. Von Dr. W. Birk. Pp. 269. M.15.

NEWNES, GEORGE, London.
The Book of Potato Cookery. By Mrs. M. L. Wade. Pp. 64. 1*s*.

NOSTRAND, D. VAN, New York.
Colloids in Biology and Medicine. By Professor H. Bechhold. Authorised translation from 2nd German ed., with Notes and Emendations by J. G. M. Bullowa, A.B., M.D. Pp. 464. 31*s*. 6*d*.

SCHOOL PRESS, Rupert-street, London, E. 1.
The Pharmacopœia of the London Hospital. Compiled by F. A. Hocking, B.Sc., Pharmaceutist to the Hospital. Pp. 247.

SCIENTIFIC PRESS, London.
The Nursing of Chronic Patients. By E. C. Barton, R.R.C. Pp. 126. 1*s*. 3*d*.

UNIVERSITY PRESS, Cambridge.
Practical Plant Biochemistry. By Muriel W. Onslow. Pp. 178. 15*s*.

UNWIN, T. FISHER, London.
Feminism and Sex Extinction. By Arabella Kenealy, L.R.C.P. Dub. Pp. 314. 8*s*. 6*d*.

URBAN AND SCHWARZENBERG, Berlin and Vienna.
Ergebnisse der gesamten Medizin. Von Professor Dr. Th Brugsch. Pp. 657. M.180.

Notes, Short Comments, and Answers to Correspondents.

MEDICAL PROGRESS IN CHINA SINCE THE REPUBLIC.

BY WU LIEN TEH, M.A., M.D. CANTAB., LL.D.,
PHYSICIAN EXTRAORDINARY TO THE PRESIDENT OF CHINA.

IN spite of the disturbed state of the country since the establishment of the Republic in 1911, the progress of medical and sanitary science has been very marked and steady. This has shown itself in two ways: (1) the readiness with which both the Central Government and the provincial authorities have established and supported hospitals and institutions of a sanitary nature; and (2) the increased interest shown by the general public in Western medicine, home cleanliness, and matters bearing a hygienic value.

The Plague Prevention Service.

The new era in modern preventive medicine may be said to have commenced in 1911, when the Chinese Government and people noticed the great superiority of accurate scientific methods as compared with crude haphazard methods for the suppression of the pneumonic plague in Manchuria. On one hand, they saw a body of clean, earnest, and fearless young men, equipped with knowledge, microscopes, instruments, and disinfectants, and succeeding in their work of suppressing the epidemic; on the other, they encountered talkative, old-fashioned, uncertain men, whose one idea was to needle and drug the patients, and who, because they took no precautions against the disease, died as easily as the patients. One great result of this epidemic was the establishment of the North Manchurian Plague Prevention Service, which I had the honour to direct, consisting of hospitals at Harbin, Tsitsihar, Sansing, Newchwang, Taheiho, Manchouli, and Lahasusu. Harbin, being the commercial centre of North Manchuria and also the principal focus of infection in 1911, has the largest hospital, covering an area of six English acres and containing an up-to-date bacteriological laboratory capable of handling all sorts of bacteriological research. In ordinary times, when no epidemic exists, these hospitals are used for general purposes, surgical operations being performed and in-patients suffering from various ailments being admitted for treatment. The medical staff of the Plague Prevention Service consists of ten male and two female doctors, distributed among the different hospitals. Inside the hospital at Harbin there is a fine medical library, much patronised by the American and other foreign doctors of the city. An interesting museum of medical objects is also attached to it. Besides annual medical reports, the Plague Prevention Service has published two voluminous scientific reports containing research and other matters carried out by members of the Service. Now and then, as during the last summer, another epidemic than plague—namely, cholera—claimed the attention of the staff. Although very severe, it was suppressed within six weeks with the low mortality of 14 per cent., as compared with a mortality of 50-60 per cent. in other cities, where the outbreak did not subside until the end of November.

Interesting Medical Landmarks.

In November, 1913, a presidential mandate was issued authorising the dissection of dead bodies in China. This, together with the Imperial sanction of cremation of cadavers from plague in 1911, has undoubtedly paved the way further for medical progress in China. Another interesting landmark in the annals of medicine in this country was the foundation of the National Medical Association in 1914, when 30 medical graduates from European, American, Japanese, and Chinese colleges met together in Shanghai and formed the nucleus of the Association. It has now a membership of over 450 male and female members. The first President was Dr. Yen Fu Ching, M.D., of Harvard, and the second was myself. So far two conferences of the Association have been held, one in 1915 (Shanghai) and one in 1916 (Canton). The third one will be held this year in Peking in conjunction with the Medical Missionary Association, at which it is expected famous anatomists, physiologists, and specialists will attend from various parts of the world.

On Sept. 30th, 1915, an important mandate was issued recognising Western medicine as the proper standard of medical practice in China. Anyone practising medicine in the country will henceforth be required to produce a certificate from the police. It would be better if this power were centred in the hands of a recognised Central Medical Council, but until that comes into being the police permit will have to stay.

Up to 1915 Peking had no proper hospital for the treatment of infectious disease, such as scarlet fever, diphtheria, typhoid, &c. Thanks to the liberal policy of the then Minister of Interior (Mr. Chu Chi Chien) a hospital for this purpose was built in the Tenth-street, North City, capable of accommodating 60 beds. This hospital has done most creditable work under the combined direction of Yen Chi Chung (graduate of Tokio University) and Dr. S. P. Chen (M.B. of Cambridge). Cases of small-pox are now sent to an auxiliary epidemic hospital in the grounds of the Temple of Heaven outside Chien Men.

The year 1914 saw the visit to this country of a commission of medical experts appointed by the Rockefeller Foundation to consider the possibility of establishing two first-class medical colleges in China for the training of future Chinese doctors. Another commission followed in 1915, and as a result it was decided to found two well-equipped colleges and hospitals, one in Peking and the other in Shanghai. The one in Peking is now nearly completed, and will be formally opened in the fall of 1920. The cost of this place has approximated 5 million gold dollars, and it is expected that the annual budget will not be less than 1 million, though only 100 students will be trained at one time. When finished and in working order the Rockefeller Medical College and Hospital of Peking will eclipse anything in existence in Europe or Asia in the magnificence of its architecture and the completeness of its outfit.

The Peking Central Hospital, upon which the writer devoted the best part of four years in collecting funds, constructing, and equipping, was finally opened on Jan. 27th, 1918. The total cost is $300,000. It is modelled upon the American plan and possesses three storeys and a basement. It contains four large wards, each accommodating 25 beds, as well as a series of fine private rooms for first and second-class patients. Until the opening of the Rockefeller Hospital, the Central Hospital will stand as the finest institution of its kind in China or Japan.

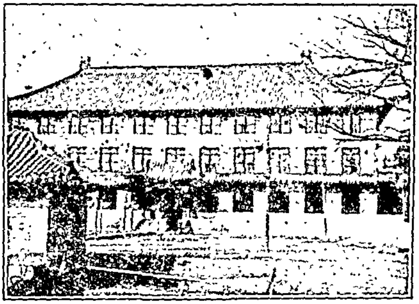
FIG. 1.—The New Rockefeller Hospital and Medical College in Peking: the Central Administrative Building.

As a result of the second visitation of pneumonic plague in China in 1918, the Central Government devoted the balance of the 1 million loan (obtained for the suppression of the epidemic) to the establishment of an institute for infectious diseases in the grounds of the Temple of Heaven, a beautiful spot covered with old pine trees. Here a series of isolated red-brick buildings have been erected for the different departments of the institute—e.g., investigation, serum, veterinary, chemical, &c. Over 40 experts, mostly graduates of Japan, are connected in one way or another with the institute. During the last summer, when cholera threatened Peking and the vicinity, this institute distributed vaccine made in its laboratories for use among the troops. The chemical department undertakes to analyse patent medicines and chemicals submitted to it for a fixed fee. The institute is connected with the Ministry of Interior, and comes directly under the Department of Sanitation.

The first medical college established in North China is Peiyang Medical College, now Naval Medical, founded in 1893 by Viceroy Li Hung Chang in honour of the services rendered to his family by the British missionary, Dr. Mackenzie. After Dr. Mackenzie's death several past students of the college were appointed directors, of whom the most prominent was Dr. W. T. Watt. The present staff consists of Dr. H. Y. King (director), four French, one British, and ten Chinese professors. The Army Medical College was started in Tientsin in 1903 by Viceroy Yuan Shi Kai, the first director being Dr. Hsu Hua Ching, one of the first four graduates of the Peiyang Medical College. In 1918 this college was transferred to Peking. As at present constituted, it occupies an enormous area in the East City between the Fifth and Tenth-streets, the ground comprising nearly 40 acres. Besides the college and hospital there will be built a veterinary college and a military drug factory. The whole place is under the efficient management of

Surgeon-General Chuan Shao Ching. The total cost is in the neighbourhood of $800,000.

Coöperation of Chinese and Foreigners.

A noteworthy feature of this medical progress is the increasing coöperation of Chinese and foreigners. Instead of adopting an exclusive policy, missionary institutions are inviting more and more the assistance of their Chinese colleagues. This liberal-mindedness is a wise one, for the natural teachers, healers, and research-workers in China are the Chinese themselves, many of whom have now received a first-class training abroad. In this respect the China Medical Board of the Rockefeller Foundation is more far-seeing than the authorities of the Hong-Kong University, for it has already on its staff at least 12 Chinese doctors out of a total of 33 teachers.

Other institutions which have contributed considerably to the progress of medicine in China are the Yale Medical School in Changsha (Hunan); the Union Medical Department of the Shantung Christian University (Tsinanfu); the Kung Yi Medical College and Hackett Medical College (both in Canton), where women receive a good training. The French Medical College in Canton, with which is affiliated the Hospital Doumer; the Sino-French Medical College at Changtehfu (Honan), to which is attached a small Institut Pasteur; and the Medical Department of the French Catholic University of Aurore in the French settlement of Shanghai.

One institution, unique in its way, has perhaps done more than any individual school for the propagation of hygienic ideas among the masses. This is the famous Tsinanfu Institute, founded in 1905 by the Rev. J. S. Whitewright, of the English Baptist Mission. The buildings cover over three English acres and have cost over $150,000. About half a million persons visit the institute in the course of one year. There should be at least one such institute in every large city in China for the training of the masses in modern progress, including hygiene.

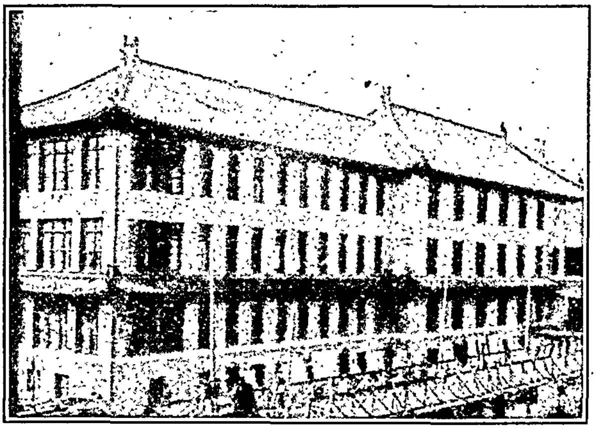

FIG. 2.—One of the General Wards where the sessions of the Joint Medical Conference of Feb. 21-28 were held.

An interesting advance has been made in the appointment of a Terminology Committee, consisting of representatives of the Ministry of Education, National Medical Association, Medical and Pharmaceutical Society, Medical Missionary Association, and Kiangsu Educational Association, to determine the terms to be used throughout China. So far, the complicated terms of anatomy have been finished and accepted by the Government as official. The terms in bacteriology, chemistry, and physics have also been finished and are awaiting recognition.

It is generally acknowledged that until the poorer classes practise hygiene as well as the educated classes, infectious and other communicating diseases will not be stamped out. Knowledge of simple laws of health are therefore essential among high and low. With a view to carrying out such work, the Joint Council of Public Health Education was formed in 1916, consisting of representatives from the Y.M.C.A., National Medical Association, and Medical Missionary Association, with offices at 5, Quinsan Gardens, Shanghai. The two secretaries are Dr. W. W. Peter and Dr. S. M. Woo. Their method of work consists in preparing travelling exhibits of automatic models, plans, lantern slides, "movies," and other methods by which the attention of the audience may be arrested and retained. Besides the above, hundreds of thousands of pamphlets snd booklets have been issued and sold at cost price. Among the titles of these books may be found: How to Live, First Aid in the Home, Sanitation of a Chinese City, Tuberculosis, Infant Hygiene, Plague, Small-Pox, Venereal Disease, Care of Teeth, Care of Eyes, Cholera, Sexual Hygiene for Young Men, &c. These books have had an enormous sale, showing that the public are interested in promoting hygiene.

Pressing Needs in the Medical Line.

Acting on the principle that "Discontent is the Essence of Progress," I am still far from satisfied with the speed at which sanitary matters have been undertaken by the authorities. The public health of the country should be invested in the hands of a business-like Central Health Bureau, with power to control epidemic diseases, collect and distribute vital statistics, manufacture vaccines, and perform analyses. In addition, a Central Medical Council should be established in Peking, consisting of leading medical men as well as representatives of the Government, for the control and supervision of medical education and practice. The time has come when the old-style methods of practice should be absorbed into the modern methods, or else prohibited entirely in a limited number of years. The present system of simultaneously employing native-trained and Western-trained medical officers in Government hospitals and in the army is wasteful and backward. Hygiene should be more widely taught in elementary and high schools, and properly trained school doctors employed to supervise the health of the pupils, so that all the defects may be at once discovered and corrected instead of being allowed to undermine the health and often shorten the lives of the children. The supervision of public health should be in the hands of proper sanitary boards, comprising leading physicians and business men, as well as the police authorities. Social leagues should be founded wherever possible by leading citizens, men and women, and future mothers taught practical details for the management of a healthy home and family. The present tendency among the people, especially women, to buy patent medicines for headaches, constipation, menstrual pain, backache, sleepnessness, and even sterility is widespread, and can only be stopped by a fuller understanding of the laws of nature and a higher conception of the ethics of the medical profession. It may be further promoted by access to such public institutions as natural history museums, public health exhibits, industrial museums, commercial and technical displays throughout every large city in the land. As the trade of the country expands and technical and commercial education becomes more popular these institutions will, no doubt, be established.

REMOVAL FROM THE PANEL: THE TRIBUNAL UNDER THE NATIONAL INSURANCE ACTS.

THE recent discussion in the House of Commons upon the legal position of the practitioner threatened with removal of his name from the panel (THE LANCET, May 22nd, p. 1139) suggests that the procedure adopted is not very widely known. We therefore print, with substitution of the actual names, a typical correspondence on the subject.

Ministry of Health, 19th May, 1920.

Barchester Insurance Committee and Dr. A.B.C.

SIR,—I am directed by the Minister of Health to enclose a copy of the report made by the Inquiry Committee appointed to consider the representations made by your clients, the Barchester Insurance Committee, against Dr. A.B.C., and to state that, in view of the findings contained in the report, the Minister is not satisfied that the continuance of Dr. A.B.C. on the panel would be prejudicial to the efficiency of the medical service of insured persons, and he has accordingly decided to take no further action in the matter.

In view, however, of the breaches of the Medical Certification Rules disclosed in the report, the Minister would have been disposed to inflict a monetary penalty on Dr. A.B.C. by means of withholding Exchequer grant from the Committee, had the Committee recommended this action in the first instance; and for this reason he does not propose to make an order with regard to the costs of the inquiry,

I am, Sir, your obedient servant,
(*Signed*) R. H. CROOKE.

The Solicitor to Barchester Insurance Committee.

THE PSYCHOGENIC TREATMENT OF APOPLEXY.

A CORRESPONDENT has sent us a cutting from the *Medical Times* for May, in which Dr. Eli Grellet Jones, who is described as president of the "Medical Society of the United States," contributes an original communication on the Treatment of the After-effects of a "Stroke of Apoplexy." Dr. Jones, who is a graduate of Dartmouth Medical School, Hanover, N.H., has found that "kali mur., third decimal trituration" is the remedy upon which we can depend to prevent inflammatory deposits about the apoplectic focus. It not only helps to absorb exudates, but also helps to cure the hemiplegia. A heartfelt "God bless you, Doctor," from many old people whose lives he has thus prolonged, has comforted him greatly for his labours in this field. It will, we think, long be the duty of the general practitioner to make his patient's life as happy and comfortable as may be by psychogenic means in many incurable morbid conditions, especially by showing him how to live within the limits of his disabilities. Dr. Jones evidently carries out psychogenic treatment of this sort with satisfaction both to himself and to his patients, but we do not think he is, in so doing, making an original contribution to medical science, nor can we find in the *American Medical Directory* any reference to the society over which he is stated to preside.

Goulstonian Lectures

ON

THE PRINCIPLES OF MEDICAL SCIENCE AS APPLIED TO MILITARY AVIATION

Delivered before the Royal College of Physicians of London

BY J L BIRLEY, C B E, M B, B CH OXON, F R C P LOND

LECTURE II *—WAR FLYING AT HIGH ALTITUDES

Delivered on March 11th 1920

IN the last lecture I had occasion to refer to exposure to high altitudes as a factor in shortening the flying officer's period of efficiency and accelerating the onset of fatigue To day I propose to consider the very difficult and important question of altitude in detail, fully realising that it entails a journey into the sphere of pure physiology and a consideration of highly technical data, to express my own opinion on which would certainly savour of presumption I shall, therefore, attempt first to present the actual facts as observed, and, secondly, to discuss, and if possible interpret, them on as broad a basis as possible And here it is as well to realise that the great development of the powers of the aeroplane has provided a remarkable example of the value of what is sometimes termed "academic" research—that is to say, of investigations which at the time they are made appear to have little applicability to the problems of the present, or even of the immediate future It was, in fact, exactly 40 years before flying at high altitudes became practicable that the physiological principles involved had been definitely established by the masterly researches of Paul Bert[1]

THE GROWTH OF FLYING

It was not until the closing months of 1916 that our thoughts were directed towards the subject of this lecture At that time, however, a machine made its appearance in the field which was capable of reaching an altitude of nearly 20,000 ft I well remember hastening down to the aerodrome where this new prodigy was on view and interviewing an extremely small person whose diminutive stature and boyish demeanour belied his proud claim to having attained military age He had only a few minutes previously landed from an altitude of 18,000 ft, where he had been engaged in the novel experience of testing his marksmanship on an enemy balloon which had drifted many miles over our lines The fact that he had not succeeded in hitting this enormous target failed both to depress him and to impress me Except for admitting that he had felt "lonely and cold up there," he protested complete ignorance of any untoward symptoms, and appeared refreshed rather than fatigued by his experience Shortly afterwards, however, I had occasion to visit a squadron where I found a very different state of affairs This unit had been employed for the past two months on patrols at 15,000 to 17 000 ft, and the effects of altitude had become, unprompted from any medical source, a subject for discussion in the mess All the pilots were agreed that the work was very fatiguing, and except for a certain degree of dyspnœa in the air the chief effects were felt after landing the most usual symptom being frontal headache

It was therefore clear that a new problem had arisen which the science of medicine would have to help to solve To what extent matters in this direction would develop was a matter of conjecture, but that it would necessarily be limited was early apparent, since the internal combustion engine was likely to suffer as much from oxygen want as the occupant of the machine which it propelled

THE MILITARY ASPECTS OF HEIGHT

Apart from its adverse effects on the human organism superiority in altitude confers definite tactical advantages It enables the pilot to get beyond the reach of his opponent, and in this happy and secure position to reconnoitre at his leisure, or to reach the objective to be bombed, and to return with a minimum of interference from the enemy During the war the advantage for reconnaissance was definitely realised, that for bombing, however, only imperfectly The latter was clearly sought after by the enemy in his raids on England, since all the later machines employed for this purpose were equipped with oxygen apparatus But the most important advantage which altitude conferred was undoubtedly that connected with fighting in the air An aerial combat between modern scout machines is, as a rule, a matter of seconds rather than minutes and the advantage of initial speed in attack is inestimable Superiority in height confers this advantage by enabling the pilot to dive on his opponent It was for this reason that it seemed essential for fighting machines to be capable of attaining great and still greater altitudes without at the same time losing so much engine power as to render them unairworthy and devoid of manœuvrability

These mechanical considerations were profoundly modified in practice, since the purely mechanical advantages of height were in great measure counterbalanced by its physiological disadvantages I think I should be fairly correct in stating that in 1918 all purely fighting machines had a "ceiling" of at least 20,000 ft, and equally correct in estimating the decisive combats at this altitude at less than 1 per cent, and those above 15,000 ft at less than 20 per cent, of all that took place This discrepancy was not due to the fact that machines did not fly at the higher altitudes, but was largely although not entirely, attributable to a great many factors of a purely military nature which cannot be discussed here Fighting pilots, in fact, came to look upon the advantage of altitude as one not to be lightly thrown away, but, at the same time as one which under certain circumstances might be dispensed with The decision as to which course to pursue rested largely with the fighting qualities of the machine, and where a pilot was confident of superiority in this respect he was often prepared to discard the dubious advantages of height Towards the end of the war the physiological effects of great altitudes became so widely recognised that in one part of the line pilots were instructed not to fly above 16,000 ft This order could not be enforced and was, in fact, disobeyed for the simple reason that they preferred the obvious tactical advantage to what seemed to many the purely hypothetical drawbacks, and the instinct of self preservation guided their conduct It has always been my opinion that the paralysing and insidious effects of oxygen want had a far greater influence in determining the course of aerial operations than has yet been realised

HIGH ALTITUDES BEFORE THE ADVENT OF THE AEROPLANE

Our knowledge regarding the effects of high altitudes no doubt originated in the experiences of mountaineers nevertheless, experimental balloon ascents[2] date back as far as 1800

In 1800 Robertson and a companion ascended from Hamburg to 21 500 ft and observed pain in the ears and difficulty in hearing one another speak In the same year Gay Lussac and Biot ascended from Paris to 23 000 ft and noticed in addition to the great cold laboured breathing quickened pulse and headache In Italy also in 1800 Zambecari Grassati and Andreoli made a similar ascent, all were nearly frozen to death, and the two former became unconscious In 1831 Glaisher and Coxwell made their historic ascent At 19 000 ft cyanosis rapid pulse and difficulty in breathing were recorded together with difficulty in reading instruments although they could be seen perfectly well at greater altitudes great muscular weakness supervened and at 29 000 ft Glaisher fell down unconscious, Coxwell however although paralysed in his limbs was able to open the valve by pulling on the valve cord with his teeth The lives of both men were saved and it certainly appears a little remarkable that shortly after landing they were able to walk home a distance of some seven miles In 1875

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* Lecture I was published in THE LANCET of May 29th (p 1147)

Tissandier, Sivel, and Croce-Spinelli, under the direction of Paul Bert, made their famous but fatal ascent to 27,500 ft., to which further reference will be made.

Just previous to the war the Pike's Peak expedition[3] had published its report on the physiological effects observed during the first few days after reaching the summit (14,100 ft.) and during the subsequent processes of acclimatisation and deacclimatisation, while in 1912 there appeared an account of the Duke of the Abruzzi's remarkable expedition to the Himalayas made three years previously.[4] The main conclusions of these two expeditions were in direct opposition to each other. Whereas "mountain sickness" was experienced by all four members on arrival (by *train*) at the summit of Pike's Peak, and shortness of breath and undue fatigue on exertion were experienced even when "acclimatised" by a stay of five weeks on the mountain, four members of the Abruzzi expedition made an ascent from 22,842 to 24,600 ft. through deep soft snow "without exhaustion, without lowering of morale, without exaggerated difficulty of breathing, without palpitation or irregularity of pulse, and with no symptoms of headache, nausea, or the like." And the report goes on to add, "the fact of the immunity admits of but one interpretation—namely, that rarefaction of the air under ordinary conditions of the high mountains, to the limits reached by man at the present day, does not produce mountain sickness."

The experiences of the Abruzzi expedition were at variance with early experiences in the air in France, and it was obvious that whereas in the former a high degree of acclimatisation had had time to develop, a similar compensation was denied to the aviator. In other words, an individual sitting quietly in his machine might fly without discomfort to 16,000 ft., but if he had landed on a mountain aerodrome at this height he would almost certainly have been incapable of walking 100 yards.

The experiments made several years ago by Haldane and his collaborators, both in steel chambers and by breathing air deficient in oxygen, were chiefly of theoretical interest. The majority of them, moreover, were of short duration, and the subjects were few in number. They had nevertheless demonstrated a fact of the greatest practical importance and interest—viz., the existence of wide individual variations in response to oxygen-want.

MEDICAL ASPECTS OF HIGH FLYING AS OBSERVED DURING THE WAR.

A. *Effects while in the Air.*

Up to about 15,000 ft. a great many individuals noticed nothing unusual provided the flight was a short one, while a smaller number were similarly unaffected in short flights at considerably greater altitudes. The speed of ascent was an influence difficult to estimate; much more important was the duration of exposure to great altitudes. Remaining at anything over 15,000 ft. for over an hour was nearly always productive of some noticeable alteration, which was aggravated by increase of altitude and length of exposure.

1. *Mental effects.*—These corresponded in every way with what has been observed in other conditions when the organism is suffering from want of oxygen, accidental (carbon monoxide poisoning) and experimental, and consisted of a dulling of perception rather than of sensation.[5] Memory was similarly affected and the registration of events incomplete. Many an officer has been taken to task for lack of observance on high reconnaissance owing to his inability on landing to report what he had observed, and squadron commanders were eventually in the habit of drawing up a pro forma report with a questionnaire necessitating nothing more than a filling in of yes or no. One squadron commander informed me that not only did this help him to get accurate information, but that if his officers were left to write out their reports in full "they would be muddling about at them for hours," and make so many mistakes in writing and spelling as to render them barely decipherable.

Officers doing long reconnaissance, although able to see the ground perfectly, often failed to recognise the country they were flying over, while some amusing incidents were provided by observers making mistakes with their cameras; they were usually aware that something was wrong, but indignantly attributed the mischief to some fault of the camera rather than to their own mental incapacity. One observer returned from a high photographic reconnaissance well pleased with his effort until it was discovered that he had taken 18 photographs on the same plate; when tested in hospital by the nitrogen-diluting method to 18,000 ft. he fell fast asleep, and could only with difficulty be roused.

The onset of these mental effects was so insidious as frequently to pass unnoticed. In character they are not at all unlike those produced by alcohol. Pilots have attacked enemy formations without any plan of campaign but from sheer bravado, making tactical errors of which under ordinary circumstances they would never have been guilty; on the other hand, an officer has been known to wave his hand in friendly greeting to the enemy. Irritability and unreasonableness were other characteristic features; in a certain type of machine in which pilot and observer communicated with one another by means of hastily written notes one pilot threw all the notes overboard without reading them in sheer disgust.

Diminution of auditory sensations was generally recognised, but the fact that the engine became almost inaudible above 20,000 ft. never seemed to strike them as remarkable.

Another feature was the tendency to go to sleep. A pilot, for example, was returning from a long bomb raid at 17,000 ft. using oxygen; as he did not begin to descend after crossing the lines, but appeared intent on gaining the English coast rather than his own aerodrome, his observer reluctantly took action and roused him from his sleep, which was due to his oxygen-supply having run out.

The mental effects of oxygen-want have never been more vividly described than by Tissandier, the sole survivor of the balloon ascent in 1875, in which all three individuals were provided with oxygen but were paralysed before realising the necessity of using it. "The condition of torpor which overcomes one is extraordinary. Body and mind become feeble little by little, gradually and insensibly. There is no suffering; on the contrary, one feels an inward joy. There is no thought of the dangerous position; one rises and is glad to be rising. The giddiness of high altitude is not an empty word; but so far as I can judge from my own impressions it appears at the last moment and immediately precedes extinction, sudden, unexpected, and irresistible."[1]

Although the mental effects at altitudes commonly reached during the war (15,000 to 23,000 ft.) so often passed unnoticed, many experienced officers fully realised the characteristic impairment of judgment, the delay in making up one's mind, or even a complete inability to do so. From the military standpoint two effects are of particular importance. The first is what may be described as a loss of morale, which was recognised by many officers; the offensive spirit dwindles to nothing and there is a general disinclination to do anything more than wait about until it is time to fly home. The second is the inaccuracy and lethargy of the mental faculties, rendering rapid action impossible; this is reflected in the statement of many that they shot badly at great altitudes. A great deal remains to be done in the investigation of the alteration in psychometric reactions in anoxæmia before we can elucidate the problems of aerial warfare. Nevertheless, these considerations would seem to go far to explain the comparative rarity of aerial combats above 16,000 ft.

2. *Alterations in breathing.*—Nose-breathing ceases at about 12,000 ft. in most people, while at higher altitudes deeper breathing becomes noticeable. To remain at, say, 17,000 ft. or more for any length of time causes definite hyperpnœa, usually described as "difficulty in getting one's breath." The periodic type of breathing was apparently less common, but nevertheless occurred. One pilot, for example, during a test flight, in which he attained 18,500 ft. in about 20 minutes, was so overcome and periodic breathing became so severe that he lost control of his machine; he managed to get down and land safely, but had to be helped out in a dazed condition and was unable to walk without support. When tested in hospital up to 18,000 ft. periodic respiration began early and persisted for 20 minutes after the termination of the experiment.

The power of holding the breath, although, of course, not noticed by the flying officer, is greatly diminished at increasing altitudes; in fact, I was in the habit of using this test as a rough indication of the efficacy of oxygen apparatus.[6] This is shown in Tables I. and II.:—

EXPERIMENT I.—*Without Oxygen.*			EXPERIMENT II.—*With Oxygen.*		
Time from start in minutes.	Height in feet.	Time breath held in seconds.	Time from start in minutes.	Height in feet.	Time breath held in seconds.
0	Ground	82	0	Ground	78
14	10,000	71	9	3,000	78
29	15,000	53	18	8,000	81
46	18,000	32	35	12,000	75
68	20,000	24	48	14,500	79
87	20,850	13	56	16,000	74
121	8,000	57	67	16,500	75

Respiratory symptoms were naturally aggravated by exertion—e.g., fighting, using a pressure pump, taking photographs, talking, &c.—and under these circumstances were observed at comparatively low altitudes—e.g., 14,000 ft.

3. *Muscular weakness.*—This affected observers rather than pilots. The slightest exertion, such as bending down and drawing the shutter of the camera, or even talking, was "hard work." An observer's activities when fighting, standing up, operating a machine gun, and swinging a

heavy mounting were very considerable, involving an amount of work which doubled or trebled the respiratory per minute volume Under these conditions they rapidly became breathless and exhausted, and engagements had to be broken off

Nearly all pilots agreed that machines were difficult to fly at great altitudes, owing, as they supposed, to "the thinness of the air" That this was to some extent due to muscular weakness seems proved by the fact that when supplied with oxygen the difficulty largely disappeared

4 *Fainting* —The only certain instances of this occurred amongst observers after exertion

5 *Vomiting and hæmorrhage* —The former was very rare, and only one case of the latter (epistaxis) was reported

6 *Frequency of micturition* —This phenomenon was very common, and is probably explained by the combination of cold and vibration

B *Immediate After effects*

About the fatiguing effects of high altitude flying there was complete unanimity The scout pilot, it is true, was relatively little affected, but for those who were employed on long and high reconnaissance and patrols the after effects were actually distressing To realise this one only had to watch a flight landing from high patrol The gait is unsteady and laboured, reports are laboriously made out (there being a general disagreement as to what was seen and done), tempers are short, everybody looks and feels tired, and the idea uppermost in the mind is to lie down and go to sleep Severe frontal headache is common, it may persist until the following day and at times prove incapacitating Appetites are poor and spirits depressed It is easy to understand that a repetition of this kind of work over any length of time was rapidly productive of deterioration of mental and physical well being

The chief characteristics of flying at high altitudes were, therefore, an impairment of efficiency in the air and, as a result of its exhausting effects, a shortening of the active service period

This summary, however, requires qualification, for there was always a small but important minority of officers who were remarkably resistant to anoxæmia Scout pilots who were never subjected to long exposures especially denied any ill effects, either immediate or cumulative, and even officers employed on long reconnaissance occasionally showed unexpected powers of resistance An example of this may be mentioned —

Captain X, D S O, M C, age 21 Long distance runner since early boyhood 550 hours flying as instructor, 150 hours' active service, 1916, now completed another 300 hours' active service fighting reconnaissance at 18 000 to 21,000 ft Weight (estimated), 150 lb, height, 5 ft 9 in, breath holding, 110 seconds, expiratory force, 180 mm Hg, vital capacity, 4250 c cm, B P, 120 85, pulse sitting 80, standing 78, exercise 85 As a flight commander he has "set the pace" in his squadron, and has been entirely immune to the ill effects which were being experienced, largely as a result of his leadership, by his own observers and the rest of his companions Judging by results, he was clearly efficient under conditions in which the rest could barely manage to follow He saw at least two relays of officers go home exhausted after three or four months before he at last began to suffer from severe headache after landing, and a little later from symptoms in the air

THE USE OF OXYGEN IN AERIAL WARFARE

From experience which was accumulating in the field and from the results obtained by previous experimenters the necessity of equipping machines with oxygen apparatus was self evident At what altitudes oxygen would be necessary was less clear, although its use at comparatively low altitudes appeared desirable from the purely physiological standpoint

At this time (end of 1916) it seemed likely that oxygen would be more particularly required by the fighting scout owing to its great and increasing climbing powers Remembering that in the modern military machine a pilot frequently had as many as 20 instruments to watch, it seemed essential to provide him with an apparatus which would require no attention It accordingly had to deliver the requisite amount of gas automatically, and, in addition, had to be provided with a simple indicator so that a pilot could see at a glance whether his instrument was working satisfactorily That the amount of oxygen delivered should be regulated by the instrument and not by the pilot was further indicated by the consideration that the latter is no judge of when or in what quantities he requires oxygen, while his attention was likely to be diverted by the necessities of the moment from symptoms the significance of which he could not be expected to gauge Further, as every ounce of weight was supposed to make a difference to the performance of the scout machine, and as space was at a premium, the apparatus had to be light and compact

These desiderata were satisfied by the apparatus designed by my recent colleague, Professor Dreyer, on whose advice in these and many other matters I so largely and gladly relied The essential feature of this apparatus was the regulation of oxygen delivery by an aneroid controlled valve, so that the amount delivered varied in inverse proportion to the barometric pressure surrounding the instrument, and, consequently, in direct proportion to the height

The reasons for the unsuitability of any high pressure oxygen apparatus as opposed to liquid oxygen for use in aeroplanes in war time are of no physiological importance except that the weight and bulk of the cylinders limit the amount of oxygen which can be carried The military drawbacks cannot, however, be disregarded, but it is only *fair to remember that the industrial position of this country differed fundamentally from that of Germany The latter cut off from the nitrate supplies of South America was forced to develop on a large scale the manufacture of liquid air in order to secure the supplies of nitrogen necessary for* making explosives They therefore had no difficulty in equipping their aeroplanes with liquid air or oxygen

It is evident that the constant delivery of oxygen in suitable quantities, automatically controlled by changes in altitude, will keep the pilot under physiological conditions throughout his flight, and that accordingly continuous delivery is greatly preferable to an intermittent one, in which the quantities delivered would be largely controlled by the pilot Unfortunately, however, continuous delivery entails the constant wearing of a face mask, or at least (though far less satisfactory) of a pipe held between the teeth, and it was on this seemingly trivial point that the use of oxygen by the fighting scout pilot, for whose particular *benefit all our plans had been laid, broke down*

There is an old saying, I believe, that "no man ever commits suicide with his hat on" Certainly it proved to be the case that practically no pilot, whose prime duty it was to seek out the enemy and destroy him or be destroyed relished the prospect of undertaking *the task with a mask* over his mouth and nose *For much the same reason several of the most famous fighting pilots dispensed with their goggles and even their flying helmets* Whether this natural dislike, one can hardly call it prejudice, can be overcome by education remains for the future That it nevertheless is possible to fight, and fight successfully, with a mask was demonstrated by not a few officers who were attached when engaged on long and high reconnaissance, a type of work for which oxygen was absolutely essential We had unfortunately, a practical demonstration that long reconnaissance (three hours or more) at 20,000 ft was impossible without oxygen Not only were officers unable to give an account of their observations on landing, but the numbers available for duty rapidly dwindled To these individuals oxygen in spite of the mask came as an unmitigated blessing Ability to make full use of an aeroplane's climbing powers and performance at altitudes ranging up to 22 000 ft with conservation of the individual's well being enabled single machines without escort to make the most valuable and comprehensive reconnaissances far over the enemy's territory Two squadrons which were confined *to this kind of work*, in a few months took an enormous number of photographs over a large range of enemy country with comparatively light casualties, while the length of the active service period among their officers was at least as high as any other squadrons in the field

The Quantity of Oxygen Required

The amount of oxygen required to maintain physiological conditions naturally depends on (*a*) the altitude, and (*b*) the volume of air breathed per minute, which in turn depends on (*c*) the amount of work done The relation of barometric pressure to altitude is seen in Table III,[7] to which is added for convenience the percentage of oxygen in the inspired air which measured at sea level would give the same values of

TABLE III

Barometric pressure in Hg	Altitude in feet	Corresponding O_2 percentage at 760 mm	Barometric pressure in Hg	Altitude in feet	Corresponding O_2 percentage at 760 mm
760	0	20 96	412	16 000	11 37
704	2,000	19 38	382	18,000	10 56
651	4 000	17 93	354	20 000	9 78
602	6 000	16 60	328	22 000	9 06
557	8 000	15 37	303	24 000	8 35
516	10 000	14 25	278	26,000	7 68
478	12 000	13 24	254	28 000	7 03
444	14,000	12 28	230	30 000	6 40

partial pressure of oxygen as exist in ordinary air at the corresponding altitudes.

A pilot being more or less immobilised in his machine is debarred from taking exercise, while his somewhat cramped position probably handicaps deep breathing. His observer, on the other hand, has considerable latitude of movement and at occasional intervals is called upon to perform hard muscular work. The following table of respiratory volumes and rates per minute (Table IV.) corresponding to different work-equivalents is quoted from Haldane.[8]

TABLE IV.

—	Air breathed *in litres* per min.	Average volume *of each breath* in litres.	Number of *breaths* per min.
Rest in bed	7'7	.0'457	16'8
Rest standing ...	10'4	0'612	17'1
Walking 2 m.p.h....	18'6	1'27	14'7
Walking 3 m.p.h....	24'8	1'53	16'2
Walking 5 m.p.h....	60'9	3'14	19'5

The average respiratory volume per minute of 17 subjects in the sitting posture examined by Ellis[9] was 7·37 litres. The work done by an observer fighting his gun approximates to the work-equivalent of a man walking between two and three miles an hour.[10] Owing to the limited amount of compressed oxygen which can be carried in an aeroplane it was necessary to regulate the automatic delivery of oxygen so that it would last for the whole period of the flight, and a certain amount of economy was therefore imperative. It was eventually decided to supply sufficient for a man doing a work-equivalent of walking just over two miles an hour—i.e., breathing 20 litres per minute;† in other words, more than twice the amount actually required by the pilot or observer, provided they were sitting still. Against this it must be mentioned that no attempt was made to obviate loss of oxygen during expiration; this would have involved an expiratory valve and collecting bag, which would have added to the complexity and vulnerability of the apparatus, and also taken up valuable space. Judged subjectively in the air, and by the freedom from headache and fatigue after landing, the amounts supplied were ample, and officers thus supplied were known to carry out on the same day two reconnaissances of three hours each or more at 20,000 ft. without ill-effects.

The Reaction of the Human Organism to Lowered Partial Pressure of Oxygen.

All recent investigations have confirmed the views enunciated in 1876 by Paul Bert as a result of his experimental researches that the symptoms experienced under lowered barometric pressures are due not to the mechanical effects of the lowered pressure but to the fall of the partial pressure of oxygen. In other words, they are due to want of oxygen.

There are three experimental methods available for the study of oxygen-want in man. In the first the percentage amount of oxygen in the air breathed can be reduced, the atmospheric pressure being unaltered; secondly, the oxygen can be displaced from the hæmoglobin by adding to the air breathed a gas such as carbon monoxide with an affinity for hæmoglobin 300 *times greater than that of oxygen*; while thirdly, a steel chamber may be used in which the air pressure can be reduced at will by means of a pump. This last procedure was not practicable in France, although for long experiments it presents perhaps advantages over the other two; its disadvantage lies in the fact that the observer, like the observed, is the victim of oxygen-want, and his powers of making accurate observations are correspondingly impaired. The first method is capable of wide variations; here I will only mention two: (*a*) the re-breathing and (*b*) the *nitrogen-diluting methods. In the former the subject* breathes in and out of an enclosed space, his expired CO_2 being absorbed by caustic soda; in this way he gradually uses up the available oxygen and suffers from a progressive degree of oxygen-want, to which he would succumb were the experiment not terminated and the subject rapidly returned to ordinary air. The "altitude" attained by the subject is then calculated from the percentage of oxygen found by analysis of the air in the chamber at the end of the experiment. Depending on the amount of air originally available, the experiment will be short or long. The short, or bag, method (5 litres of air) has been employed by Flack[11] in this country, while the longer method (60 litres of air) has been extensively used in America. The main drawback to these methods is that the experiment is a progressive one, comparatively short, and it is impossible to maintain the subject at any given oxygen pressure; in terms of flying it is as if the pilot were to continue to ascend until he lost consciousness. It also involves the wearing of a nose-clip and breathing through a mouth-piece.

The nitrogen-diluting method devised by Dreyer[12] is based on the principle that if nitrogen is added to the air breathed it is possible to change at will the relative proportions of atmospheric air and of nitrogen, and so to change the partial pressure of oxygen. By this method the subject can be examined for any length of time and at any "altitude" desired, while the examiner is free to make the necessary investigations unhampered himself by lack of oxygen. Except for wearing a light face-mask, the subject is free to move all his limbs.

A. *Earlier Experiments.*

It was shown by Haldane and Poulton[13] in 1908 that whereas a rapid fall of oxygen in the inspired air is accompanied by great hyperpnœa, a more gradual diminution was associated with no evident hyperpnœa owing to the preformed CO_2 having time to escape. A still more gradual fall in O_2 pressure, especially if it were maintained, as in the long steel-chamber experiments of Boycott and Haldane,[14] gives time for an accumulation of acid substances, the result of imperfect oxidation, which will serve to reinforce the action of CO_2 in exciting the respiratory centre,[15] and therefore serve to ward off the effects of want of oxygen. The view that the CO_2 tension of the arterial blood, the carbonic acid acting by virtue of its acid properties, is the *physiological* stimulus to the respiratory centre, whereby the pulmonary ventilation is regulated to suit the requirements of the organism, has become an accepted faith in physiology and medicine as a result of the experimental investigations first of Haldane and secondly of Hasselbalch.[16] A rise of CO_2 tension such as results from exercise will stimulate the centre, and the corresponding increase in ventilation will tend to keep the CO_2 at a convenient level, at the same time, by raising the alveolar O_2 tension, providing oxygen for the increased needs of the body.

When the organism is subjected to lowered barometric pressures for a matter of days or more various adaptive processes come into play; of these we need here mention only one—viz., an increased percentage of hæmoglobin in the blood. This increase was ascribed in the Pike's Peak report[3] during the first few days partly to concentration of the blood and afterwards entirely to an increase in the total amount of hæmoglobin. Dreyer and Walker,[17] however, in an analysis of these results, but more particularly of data obtained by Abderhalden[18] on rabbits kept at St. Moritz (6000 ft.) concluded that the increase in the hæmoglobin percentage was attributable during the first day or two wholly to a diminution of blood volume effected by concentration of the blood at the expense of the plasma, and during the remaining period half to new formation of hæmoglobin and red corpuscles and half to blood concentration. When the animals were brought down to sea-level the blood volume was restored in two or three days, whereas the disappearance of the newly formed hæmoglobin and red cells occupied two or three weeks.

B. *Investigations During or Since the War.*

As a result of numerous examinations on flying officers by the nitrogen-diluting method, Corbett and Bazett[19] concluded that the normal reaction to a degree of oxygen-want corresponding to altitudes of from 15,000 to 19,000 ft. consists in an increase of pulse-rate of about 30 per cent., of pulse pressure of about 35 per cent., of pulmonary ventilation of about 50 per cent., and after about half an hour in some degree of blood concentration, as evidenced by a rise in the hæmoglobin percentage. The rise in pulse pressure is brought about by a gradual fall in the diastolic pressure until a new low level is reached, which is maintained, the systolic pressure remaining unaffected, or rising slightly. The increased ventilation is effected by a marked deepening of the breathing, the rate being little affected or even slowed. They further found that whereas in those who responded well there was a general correspondence in the intensity and time relations of the circulatory and respiratory reactions, this was often not so in those susceptible to reduced O_2 pressures. Their paper also shows that these responses occur early and gradually reach a maximum.

These findings have been confirmed and amplified by Schneider and his co-workers in America. Taking the initial reaction first, Ellis,[9] using the long rebreathing method, found in 23 out of 29 subjects an increase of respiratory volume at the end of the fifth minute, corresponding to an oxygen percentage of 18·1 (4000 ft.), and on restoring the subjects to ordinary air from very low O_2 percentages, a prompt return to the *normal* volume. Lutz and Schneider,[20] using the low pressure chamber and nitrogen-diluting methods, found in *both* a fall of alveolar CO_2 tension and increase of respiratory volume beginning at an "altitude" of 4000 to 5000 ft.; in each case the pressure was reduced or the proportion of nitrogen increased so as to correspond to an increase in altitude of 1000 ft per minute, which is approximately the rate of climb of the modern military aeroplane Similarly[21] acceleration of the pulse usually began between 6000 and 8000 ft and in every case before 9000 ft (i e , within nine minutes) By giving the subject pure nitrogen to breathe, a procedure which necessarily reduces the alveolar O pressure very rapidly, since under these conditions the venous blood will give up its O_2 to the alveolar air by diffusion, the quickening effect on the heart occurred within 15 seconds or less in 66 per cent of cases, and the respiratory volume increased within a similar period in 61 per cent On restoring the subject to normal air the pulse rate slowed within 15 seconds or less in 86 per cent of cases, and the respiratory volume decreased within 10 seconds or less in 89 3 per cent[22] In all cases the respiratory and circulatory responses developed before the subject appeared to come under any stress from lack of oxygen Mathison[23] had previously found that the systolic output of the heart in animals subjected to pure nitrogen rapidly increased to reach its maximum in 30 seconds

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† Amount required can be calculated as follows: Of 20 litres of air 1/5th is O_2 = 4 litres. At 380 mm. Hg (18,000 feet) the partial pressure of O_2 is halved—i.e., half the required O_2 will be obtained from the air breathed, and half must be added artificially—that is to say, at 18,000 feet apparatus must deliver 2 litres O_2 per minute *measured at 760 mm. Hg.*

If now an individual be ' held " at an "altitude' for 60 to 120 minutes (as in flying) the reactions can be further studied Lutz and Schneider find that the pulse rate reaches a maximum about six minutes after 18 000 ft (382 mm Hg in steel chamber) has been attained, and 14 minutes after 19 500 ft (nitrogen method) The cyanosis also take a little time to reach its maximum After this latent period of a few minutes the pulse rate decreases in 72 5 per cent of cases, or remains unaltered in 22 5 per cent , and with this diminution in pulse the cyanosis gets less and the general condition improves Similarly the systolic arterial pressure remains unaltered, or rises slightly to fall again to its previous level, only in individuals who stand O_2 want badly is there a progressive fall In 70 per cent of cases the diastolic pressure gradually falls to a lower level which it maintains sometimes to rise again at a later period The pulse pressure follows the diastolic in inverse ratio[21] As regards the breathing, the alveolar CO_2 tension and respiratory per minute volume reach the former its minimum and the latter its maximum 5 to 10 minutes after 18 000 ft has been attained, after which the former tends to rise and the latter to fall to new levels, which are sustained The character of the breathing is deep and slow, with a tendency towards periodicity, while in no case was shallow breathing observed, and in only 2 out of 24 was the rate increased

The Changes Summarised

We may summarise these changes as follows In a large majority of healthy young men, during an ascent to 18,000 ft at the rate of 1000 ft per minute, the respiratory volume early begins to show a progressive rise, and the systolic output of the heart early and progressively increases until the maximum altitude has been maintained for some 5 to 10 minutes—i e , 20 to 30 minutes from the start of the experiment At this point the breathing and cardiac action tend to quiet down and the general condition improves

This improvement in a majority of cases synchronises with an increase of the hæmoglobin percentage in the blood, whether taken from the veins or capillaries This increase cannot be due to new formation of hæmoglobin and red cells, since it appears within 20 to 30 minutes, it must, therefore, be the result of withdrawal of fluid from the blood or of the throwing into the circulation of corpuscles which were previously side tracked For the latter hypothesis there is no experimental evidence, and it is difficult to conceive how or why such a thing could occur We must, therefore, assume that a concentration of the blood occurs which in some way relieves the circulation and (probably indirectly) the respiration[21] In 26 out of 47 experiments retardation of the pulse was associated with an increase in the hæmoglobin percentage up to 10 per cent , in all these compensation to oxygen want was good In 9 out of 47 a rise in hæmoglobin took place but was delayed, and the pulse did not slow , in these the compensation was inadequate[25]

Lutz and Schneider further point out that the respiratory and circulatory responses frequently show no correspondence either in their time relations or degree of intensity, that there are wide individual variations, and that the type of reaction may not always be the same in the same individual when tested on different occasions Moreover, in no case as Corbett and Bazett also found was complete compensation for altitudes of 18 000 to 19 500 ft ever observed, some degree of cyanosis was always present and the mental condition gradually failed with a tendency to go to sleep Further, headache and general fatigue were common after effects in the longer experiments and the alveolar CO_2 tension took some time to return to its normal figure

In what way blood concentration spares the heart is not clear The experimental records certainly seem to show a tendency for the diastolic pressure to cease falling or even to rise as the concentration becomes effective The primary fall of diastolic pressure is probably due to arteriole relaxation, and it is possible that the blood concentration increases the viscosity of the capillary blood to a degree sufficient to raise the diastolic pressure, but insufficient to produce capillary stagnation A high hæmoglobin concentration would certainly appear to facilitate the respiratory function of the blood as opposed to a low one, but the fact that, when sojourn at high altitudes is prolonged, the blood volume tends to increase pari passu with the formation of new hæmoglobin and red cells rather suggests that the reduction of blood volume is not altogether a convenient process

It has recently been shown by Kellaway[26] that in animals anoxæmia is readily productive of an increase of the blood sugar This increase is due to a direct stimulation of the central nervous system, which by splanchnic innervation causes a mobilisation of sugar directly by action on the liver cells, and indirectly by accelerating the output of adrenalin, which in turn acts on the liver In severer degrees of anoxæmia the want of O_2 apart from any stimulation of the nervous system, by its direct action on the suprarenals and possibly also on the liver, leads to hyperglycæmia How far this over production of adrenalin is responsible for the circulatory, respiratory, or blood phenomena which we have just discussed, it is impossible to say

COMPARISON BETWEEN ANOXÆMIA AND "SHOCK"

When an individual is exposed to still lower pressures of O_2 than those which we have studied the respiratory centre fails from fatigue, the blood pressure falls, and consciousness is lost

The failure of the heart is probably to some extent due to inadequate venous inflow, occasioned possibly by a rise of blood viscosity, and also, when the breathing fails, to a loss of the favourable influences exerted by respiration on the venous return by the aspiration of the thorax Defective venous inflow must necessarily be followed by defective systolic output, the blood pressure will fall, and the circulation come to an end A fall of venous pressure has, in fact, been recorded at high altitudes by several observers[27] More important, however, is the likelihood of the cardiac muscle itself becoming exhausted from want of oxygen It has been shown[28] that the heart may fail not only from being confronted with more work than it can do but also by a primary failure of its own metabolism In the second type of failure the rate of beat may be slowed, and a falling pulse rate in fatigued flying officers, tested close to their breaking point of oxygen want, has been observed by Corbett

Surgical shock and altitude sickness are both concerned with want of oxygen , in the latter the supplies are inadequate while in the former it is the transport of O_2 which is at fault The similarity of the bodily changes in shock and anoxæmia is, however, more apparent than real In both there is an increased rate of heart beat, but whereas the fall in systolic pressure occurs early in shock it is a terminal event in anoxæmia while the converse is true for the increased ventilation In both conditions it has been taught that there is an "acidosis" Concerning "acidosis" and the confusion which has resulted from the use of this polyvalent word further reference will be made Here it is only necessary to point out that the injection of a non volatile acid into the circulation does not produce "shock," while the view that "acidosis" is the cause of "shock" has been replaced by the view that an increase of acid substances occurs in "shock" owing to the defective tissue oxidation which results from the shock like condition[29] The final point of resemblance between shock and anoxæmia lies in the concentration of the blood which occurs in both The conditions under which shock occurred in the field especially favoured capillary stagnation and concentration of capillary blood , this must diminish the venous return to the heart and the arterial pressure therefore falls[30] The loss of water from the blood may in shock rapidly become extreme , in animals for example, after an injection of histamine a rise in the hæmoglobin percentage from 72 to 120 may occur within six minutes[31] In the experiments with low O_2 pressures, however, the rise is more gradual and rarely exceeds 10 per cent , and it appears, moreover, to be a favourable rather than an adverse factor Shock, in brief, is primarily a condition of circulatory depression or failure, while anoxæmia is essentially one of disturbed metabolism

ACCLIMATISATION.

An improvement in the condition of mountain-climbers during their stay at high altitudes was recognised long ago The improvement observed on Pike's Peak was attributed to three factors, which can be separately considered[5]

1 *Increased secretory activity of the lining cells of the lung alveoli*—It is common knowledge that the physiological world has for many years been divided into two schools of thought concerning the processes by which O_2 is transferred

from the alveolar air to the blood in the lung capillaries. On the one hand, it is affirmed, especially by Krogh[32] and his collaborators, that the physical processes of diffusion, involving a head of O_2 pressure greater in the alveolar air than in the blood of the pulmonary veins, is sufficient to explain the transfer at rest, during exercise, and during exposures to lowered O_2 pressures. Bohr, Haldane, and Barcroft[33] hold, on the other hand, that whereas diffusion will explain the conditions at rest, it will barely do so during exercise,[34] and certainly will not do so at high altitudes. Using the CO method for determining the tension of O_2 in arterial blood, it was found that on Pike's Peak this tension was greater than the alveolar O_2 tension, a result which can only be explained by secretion; whereas Krogh,[35] using the bubble aerotonometer finds that the arterial O_2 tension is always less than the alveolar, and the difference in tension, taken in conjunction with the amount of blood passing through the lungs per minute,[36] satisfies the diffusion theory under all conditions.

Unless secretion of O_2 by the lungs can be definitely shown to exist under physiological conditions such as exercise, the improbability of such a mechanism having been developed solely for the convenience of mountaineers or aviators becomes very great. There are, it is true, many *a priori* objections which can be adduced against the secretion hypothesis, and, as Bayliss[37] points out, it seems odd that although on Pike's Peak the arterial O_2 tension was always greater than the alveolar, it was nevertheless always less than the atmospheric O_2 tension; if secretion occurs, why should the secretory power always fail at this point? But a priori objections must give way to experimental facts, and it is better here to regard the question as being a divergence of opinion founded on a divergence of methods.‡

The important point to realise for our purposes is the fact, admitted by the supporters of the secretion theory, that the secretory powers, supposing that they exist, are inadequate, and the pulmonary epithelium fails to carry out satisfactorily the very small[39] amount of work it is called upon to do. Moreover, we know of no clinical methods by which these powers can be stimulated to increased activity.

2. *Lowering of the exciting threshold of the alveolar CO_2 tension.*—For an equal production of CO_2 the alveolar ventilation is greatly increased at high altitudes as compared with sea-level. This has been ascribed to the stimulating effect on the respiratory centre of the "lowered alkalinity" of the blood, so that the CO_2, being no longer the sole stimulus, its tension can be diminished without ill-effects. "Lowered alkalinity" of the blood has been recorded by numerous observers[40] at various altitudes, while a fall in CO_2 alveolar tension occurs early during an ascent, and is found in individuals living at such moderate elevations as 2200 ft.[41] (It does not, however, follow that because ventilation is increased that the blood is less alkaline (vide infra).) The increase in ventilation raises the alveolar O_2 pressure to a higher level than would otherwise be the case, and in this way constitutes an important factor in the compensatory process. That this occurs under flying conditions we have already seen.

3. *Increased percentage of hæmoglobin.*—The mode of production of this has already been discussed. The highest hæmoglobin percentage found among the Pike's Peak observers[3] was 134, with a red cell count of 7,800,000. In individuals who lived on the summit even higher figures were recorded—e.g., hæmoglobin 153 per cent., red cells 8,200,000. These changes imply a considerable increase in the oxygen capacity of the blood.

The stimulating effect of high altitudes on the blood-forming tissues had been previously recorded by many investigators,[42] and is evidently an adaptation evolved by the organism as a means of counteracting the effects of hæmorrhage. This valuable compensatory mechanism, as we should expect, however, is denied to the aviator, for of numerous flying officers examined under physiological conditions none was found to have an increase of hæmoglobin or of red cells.

4. *Circulatory changes.*—Except for a slight increase of pulse-rate no definite changes were observed on Pike's Peak after acclimatisation. For the flying man the matter is very different, and he responds vigorously to altitude by increasing the per minute output of his heart.

Evidence of Acclimatisation Among Aviators.

Many pilots state that they get accustomed to high altitudes when they first experience them. I was formerly of the opinion[43] that this merely meant that they get accustomed to the symptoms induced. There is, however, no question that the ability to withstand the effects, at least of short exposures, does increase in most individuals after the first few flights. Similar results have recently been obtained in low-pressure chamber experiments. In view of the rapid respiratory, circulatory, and blood reactions which constitute the normal reaction to high altitudes, this improvement would appear to be due to practice, and be of the same order as the improvement experienced by the athlete after a few short runs. In other words, practice facilitates the liberation of these reactions. That complete compensation never occurs is practically certain, and the cumulative ill-effects of a period of high flying clearly demonstrate that acclimatisation in the true sense of the word is unknown in the pilot.

In this connexion it may be asked whether a protracted period of high flying is capable of producing changes in the organs which can be recognised clinically. In other words, Is there a flying disease? This question can be answered in the negative as far as the conditions existing during the war permit of a definite answer being made. No organic changes in heart, lungs, or kidneys have yet been found which can be attributed solely to flying. Whether, however, prolonged and severe exposures to high altitudes without an artificial supply of oxygen are not able to effect changes in the nerve centres of a permanent character is not so certain, and there is, in fact, a certain amount of evidence that in rare instances such may be the case.[44]

THE REACTION OF THE BLOOD.

Before we can review the subject of anoxæmia we have to consider that much discussed and perplexing question, the reaction of the blood. It has already been mentioned that acidosis has been described as occurring in both shock and anoxæmia. Unfortunately the term acidosis is used by different writers to describe different conditions, while it is misleading in so far as it applies acidity, but in reality has very little to do with acidity. In this brief discussion I shall avoid it as much as possible.

The Maintenance of the Acid-alkali Balance.

It has recently become increasingly obvious that one of the balances which the organism is always striving to maintain is that between the acids and alkalies in the blood and tissues. This is not surprising when we consider the origin of life and the conditions under which life first appeared. It is, I believe, a fact that the salts of the blood are in the same relative proportions to one another as they are in sea-water, though in very different concentrations. In the blood of mammals the acid-alkali balance is represented by the ratio $\frac{H_2CO_3}{NaHCO_3}$ and the hydrogen-ion concentration of the blood—i.e., its acidity—is directly proportional to this ratio. If either the numerator or denominator is altered the organism will attempt to effect the necessary change, so that the ratio, and hence the H-ion concentration, or C_H, will be restored. It may, it is true, be restored at a higher or a lower level than normal, but at all costs it must be restored. There are several mechanisms made use of by the organism for maintaining this equilibrium. When an acid stronger than carbonic acid passes into the blood it displaces the CO_2 from an equivalent of bicarbonate, forming in its place its own sodium salt, as in the equation $HCl + NaHCO_3 = NaCl + H_2CO_3$. In this way the acid is neutralised and carbonic acid liberated. It is easy to understand that the change in C_H when acid is added to blood will not be nearly as great as when the same amount is added to water, for in the former the bicarbonate present will neutralise the acid ("buffer action") with the liberation of carbonic acid, the acid properties of which are very weak.[29] Nevertheless, the equilibrium has been disturbed to some extent since bicarbonate has been used up (diminution of "alkaline reserve"),[45] and the CO_2 in the system has been increased; in other words, the value of $\frac{H_2CO_3}{NaHCO_3}$ and, therefore, of C_H has been raised. It is generally accepted that *under physiological conditions* the value of C_H determines the activity of the respiratory (and possibly also the cardio-motor) centre, an increase augmenting its activity and vice versa.[15] In the example under discussion, therefore, the ratio $\frac{H_2CO_3}{NaHCO_3}$ will be brought back to normal by an increased ventilation, and consequent blowing off of carbonic acid out of the system.[46] In addition to the mechanism provided by respiration for keeping the ratio constant, the liver is capable of varying the output of NH_3, the kidneys of secreting excess of acid or alkali, whilst further regulation is provided by ionic interchange between plasma and corpuscles.[47]

Regarding the value C_H as the normal stimulus to the respiratory centre, and in view of the circumstance that the "alkalinity" of the blood had been found to be lowered in anoxæmia, the respiratory response to want of oxygen has been conceived to take place as follows. *Owing to* defective tissue oxidation acid substances appear in the blood which raise the $\frac{H_2CO_3}{NaHCO_3}$ ratio, to this rise the centre responds by increased activity, the ventilation is raised the alveolar O_2 tension tends to rise and so improves the oxidative *processes, while CO_2 is got rid of These effects* all tend to lower the ratio and restore it to normal

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‡ Hartridge,[38] by observing the change of position of the absorption bands in the direction of the violet end of the spectrum when CO is breathed, found no evidence of O_2 secretion by the lung during violent but brief exertions.

In view, however, of the great rapidity with which the organism responds *to* lack of O_2, these explanations require reconsideration, for, although the respiratory centre is *admittedly a far more sensitive indicator to changes in* C_H than any which we can employ for measuring this value, it is a little difficult to believe that the effects of defective tissue oxidation with resulting rise of C_H can be transmitted *to the centre within a few seconds of breathing* pure nitrogen, or that they can be sufficiently great to excite the centre when the oxygen in the inspired air has only fallen to 18 1 per cent[22] These considerations recall the two views which have been held regarding the *stimulus to the centre, in one[6] it was maintained that the* centre could be directly excited by lack of oxygen, while in the other[13] that lack of oxygen, until the alveolar O_2 tension had fallen to 8 per cent, could only excite the centre indirectly by reinforcing the action of CO_2 by increasing the *acidity of the blood This divergence of opinion would* appear to be one of words rather than of principles, but it certainly appears reasonable to assume that the sensitiveness of the centre to H ions is determined by the oxygen tension in the arterial blood or in the centre itself[48] In this way we can account for the rapidity with which the centre responds to quite small diminutions of oxygen, while it leaves entirely undisturbed our conception of carbonic acid as the stimulus under physiological conditions As Starling points out, "the reactions of the organism have not been evolved in order to adapt it to balloon ascents or experiments in steel chambers"[49]

The Need for a Revision of Views

"Acidosis" not only *is* a bad name, it also *has* a bad name, a person with "acidosis" is a patient 'Acidosis,' moreover, has been conceived as being part of the anoxæmic condition Hasselbalch,[50] however, under conditions of O_2-want observed a diminution of NH_3 excretion and an unusually alkaline urine Why, then, when the body is suffering from an excess of acid does the liver diminish the production, and the kidney increase the excretion, of alkali? The assumption was that these organs were striving to maintain the level of acid as high as possible, that the organism, in fact, was trying to increase its acidity These urinary changes have more recently been confirmed by Haldane[51]

It has long been contended by Yandell Henderson[52] that "shock" is a state closely allied to acapnia, a condition brought about by excessive ventilation and washing out of CO_2 More recently Henderson and Haggard[53] have shown that this over ventilation, which if not antagonised would lower the $\frac{H_2CO_3}{NaHCO_3}$ ratio and so reduce C_H, leads, if not too violent, to a balance being struck at a lower level, in which, although the *alkali in the blood is greatly reduced* the ratio is restored In such a case the alkali is redistributed in the body, and probably, though it is not so stated, some is excreted in the urine This being so the inconvenience of defining "acidosis" as a reduction in the plasma *bicarbonate or "alkaline reserve"*[45] *becomes* evident, the alkali *must* be reduced under these conditions if equilibrium is to be restored to a level compatible with the survival of the organism

These facts suggest that the views hitherto current regarding *the reaction to lack of oxygen require revision* In the first place there is the initial response of the organism to the *stimulus* of O_2 want, consisting in an effort to maintain its supplies and transport of oxygen at an adequate level the CO_2 being left so to speak to look after itself Secondly, the increased ventilation must have the effect of lowering the $\frac{H_2CO_3}{NaHCO_3}$ ratio and decreasing the acidity This decrease shifts the curve of dissociation of oxyhæmoglobin in such a way that O_2 is less readily dissociated where the O_2 tension is low—i e, in the tissues where it is most wanted[51] Thirdly, it would appear that the fall in C_H is resented by the organism which attempts to counteract it by increasing the excretion and diminishing the production of alkali Fourthly, the decrease of ventilation which is associated with blood concentration will assist to raise the acid alkali balance, and so to diminish the alkalinity

INDIVIDUAL VARIATIONS TO WANT OF OXYGEN

The remarkable variations in the capacity of individuals to react to low O_2 pressures has long been recognised, and the experiences of the war have only accentuated them

In some individuals when tested experimentally the response is found to consist of an excessive cardio vascular or excessive respiratory reaction between the two there appears to be no correlation, and the unaided response tends rapidly to exhaust itself If now the respiratory pump is *working at a greater rate than the circulatory, if, that is to* say, more CO_2 is being got rid of than is being formed, the ratio $\frac{H_2CO_3}{NaHCO_3}$ must fall and the blood become more alkaline[4] It is suggested that this lack of coordination between the two reactions may explain some of the individual differences which are so often observed

SUMMARY

The flying officer reacts to altitude by an early increase of ventilation which tends to raise the alveolar oxygen tension, and by an early increase of the circulation rate which tends to improve tissue oxidation These reach a maximum, and then tend to diminish in *intensity, the diminution or "second wind," being* synchronous with, and presumably the result of, the development of a moderate concentration of the blood, as evidenced by a rise in the hæmoglobin percentage. The ensuing fall in ventilation will give the organism a chance to adjust the chemical reaction of its blood and tissue fluids which have been greatly disturbed in the direction *of alkalinity The adaptive processes* are, however, never *completely adequate for the* higher altitudes attained in war, and the individual is handicapped by an impairment of his mental activities, of which he is himself largely unaware, and is incapacitated physically when called upon for any extra exertion Moreover, the strain and fatigue of war are exaggerated by these repeated exposures, which serve to accelerate the processes of nervous and physical exhaustion

The conditions imposed by flying at high altitudes are wholly dependent on the fall in the partial pressure of oxygen, and the loss of efficiency thereby entailed can be avoided by the administration of oxygen and by nothing else

In this digression into the realms of physiology, the attractiveness of which in no way lessens its difficulties, I have in places had to traverse the same ground as that covered by my predecessor[5] of two years ago. Although I have avoided the use of the word "acidosis," I have reached, nevertheless the same conclusion as he—viz, that under certain abnormal conditions "acidosis" is of benefit to the organism, which has, *therefore, developed mechanisms for decreasing* its production and of raising its excretion of alkali The acid alkali balance of the body must be preserved, and once this equilibrium is upset the organism strives to restore it by every means at its disposal, or dies in the attempt

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THE VITAL CAPACITY CONSTANTS APPLIED TO THE STUDY OF PULMONARY TUBERCULOSIS.

THE IMPORTANCE OF THESE CONSTANTS AS A GUIDE TO CLASSIFICATION AND AS A MEANS OF ASCERTAINING THE RESULTS OF TREATMENT.*

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IN THE LANCET of August 9th, 1919, one of us (G. D.) published a paper dealing with the normal vital capacity in man. In this paper it was shown that definite relationships between vital capacity and body surface, body weight, trunk length, and the chest circumference exist, expressed by the following formulæ:—

(i.) $\frac{W^n}{V.C.} = K_1$—where the power n is approximately 2/3, though more accurately 0·72.

(ii.) $\frac{\lambda^n}{V.C.} = K_2$—where the power n is approximately 2, though more accurately: in males 2·26, in females 2·3.

(iii.) $\frac{Ch.^n}{V.C.} = K_3$—where the power n is approximately 2, though more accurately: in males 1·97, in females 2·54.

Formulæ were also given which expressed the relationship between body weight, trunk length, and chest circumference respectively, as follows:—

(i.) $\frac{W^n}{\lambda} = K_4$—where the power n is approximately 1/3, though more accurately: in males 0·319, in females 0·313.

(ii.) $\frac{W^n}{Ch.} = K_5$—where the power n is approximately 1/3, though more accurately: in males 0·365, in females 0·284.

In all of the above formulæ—W = net body weight in grammes, λ = trunk length in centimetres, Ch. = circumference of chest in centimetres, V.C. = vital capacity in cubic centimetres.

It was also stated that different persons exhibit great differences in vital capacity, depending upon their occupation and mode of life. Thus persons living an athletic, healthy, outdoor life exhibit a greater vital capacity than persons living a sedentary life; that this difference in vital capacity in normal persons has nothing to do with fundamental bodily deficiencies is proved by the fact that properly regulated training and outdoor life can remedy this deficiency in vital capacity, as, for instance, boy scouting, army training, &c. The two sexes also differ, in the manner that the male has a greater vital capacity than the female.

The study of vital capacity in connexion with pulmonary tuberculosis is not novel, as John Hutchinson already in 1846 made use of vital capacity measurements as a help in the diagnosis of disease of the lung, more particularly tuberculosis. He showed that cases of this disease exhibited a lower vital capacity than that which he considered normal judging by the standing height of the individual. Quite recently the same subject has been carefully studied in a relatively small number of cases of pulmonary tuberculosis by Garvin, Lundsgaard and van Slyke, who also found that these cases showed a diminished vital capacity.

As we thought it was important to gain accurate quantitative information regarding the vital capacity in cases of tuberculosis of the lung by means of the above-mentioned formulæ, we decided to work jointly on the following line. One of us (L. S. T. B.) was to examine and make clinical notes of the patients, and also to take the various measurements required for the above formulæ, at the Brompton Hospital. The other (G. D.) to have no knowledge of the patients, but to form an opinion as to (1) classification, (2) prognosis, (3) the result of treatment—whether the patient was improving, remaining stationary, or getting worse, solely from the measurements supplied to him at Oxford. The only information given was the identification number of the patient, sex, age, occupation, and the measurements of weight, trunk length, circumference of chest, and vital capacity, while no information as regards the subject's condition was given, whether normal or diseased.

The procedures described in THE LANCET article of August 9th, 1919, for taking these various measurements are briefly recapitulated.

(1) Body weight = net weight without clothes in grammes.

(2) Trunk length in centimetres was taken by making the subject sit on a level floor with the knees flexed, the os sacrum, spine, and occiput being in contact with an upright measuring standard.

(3) Circumference of the chest in centimetres was taken at the nipple level in males, and just under the breasts in females, the subject being encouraged to talk and breathe naturally while the measurement was being taken.

(4) The vital capacity in cubic centimetres was obtained by taking five consecutive readings with a suitable spirometer. The subject was instructed carefully and patiently how to proceed, and encouraged to make the maximum effort.

Procedure for Calculation.

Since the publication of the above-named paper, tables have been prepared which are shortly to be published by Cassell and Co., where the vital capacity, corresponding to different weights, trunk lengths, and chest circumferences are given, as well as the normal weight corresponding to these measurements, for males and females. It has been found that for all practical purposes people may be grouped into three classes of different vital capacity—namely, A, B, and C—representing conditions of perfect, medium, and poor physical fitness. These tables have been used for the calculation of what the normal vital capacity should be in each case, paying due attention to the class the subject was likely to belong to according to his mode of life. The figure for vital capacity derived from the tables is always taken as equal to 100 per cent., and the individual is said to be normal, or minus, or plus so many per cent.

The reason for only making use of the vital capacity corresponding to trunk length and circumference of chest, and not of the vital capacity corresponding to the given weight in cases of pulmonary tuberculosis, often resulting in emaciation, is, that with loss of weight a vital capacity definitely abnormal when calculated in relation to the normal weight of the person might appear normal if calculated in relation to the reduced weight during disease. Whereas no such interference will be brought about when the vital capacity is calculated from trunk length, and only to a slight extent when calculated from the circumference of the chest.

Example:—Case No. 237.

Observation.

Male. Class A (ex-army). Age 20.	Chest circumference (Ch.) = 84·5 cm.
Trunk length (λ) = 88·0 cm.	Vital capacity (V.C.) = 2630 c.cm.

Calculation from Tables.

λ = 88·0 cm., gives vital capacity 4001 c.cm.
Ch. = 84·5 cm., gives vital capacity 4032 c.cm.

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* Being a Preliminary Report to the Medical Research Council.

(Continued from previous page.)

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The mean of these two figures $\frac{(4001 + 4062)}{2} = 4031$ c cm is thus the calculated vital capacity derived from the observed measurements of trunk length and chest circumference As the patient's observed vital capacity is only 2630 c cm, his vital capacity is actually 34 8 per cent below normal (e g, – 34 8 per cent)

Before giving in detail those cases in which the vital capacity has been examined on more than one occasion, we give a general analysis of the first 200 cases, which include many where the vital capacity has only been examined on one occasion

Of these 200, four (Nos 15, 77, 124, 140) were patients who had had pulmonary tuberculosis with T B in the sputum, but had lost the T B after sanatorium treatment One of these (No 77) was returned as – 7 per cent Although at work and having no physical sign of active disease, he was easily tired and had not lost his cough His illness began with hæmoptysis three years ago One (No 15) was – 8 5 per cent, and has since got worse (see Table IIA) The other two were returned as normal Seventeen were cases believed to be healthy, and included some of the hospital staff sent as controls (without the knowledge of G D.), and certain patients in hospital for observation, but in whom no evidence of disease was discovered *All of these were returned as normal*

One patient (No 135) had been in a sanatorium for hæmoptysis, but no physical signs or T B have ever been found, the tuberculin test was negative, and there is no X ray evidence of lung disease He was returned as normal

Ten were cases of severe bronchitis (Nos 4, 12, 50, 84, 94, 97, 142, 146, 181, 199) Their vital capacities varied from – 10 4 per cent to – 35 per cent Two were believed to have debility only, and one of these (No 18), a boy of 18, showed a vital capacity of – 12 per cent. The other's (No 172) vital capacity was – 6 6 per cent (see Table III) One (No 180) with tuberculous glands was – 7 5 per cent (see Table IV) One (No 153) suffered from neurasthenia and tachycardia, and was – 30 per cent Six were boys of from 9 to 16 years of age, apparently free from tuberculosis, and of these one (No 6), with no clinical evidence of disease, was – 7 8 per cent, but later improved to + 3 7 after hospital treatment One (No. 7), aged 15, with no apparent disease, was – 12 per cent One (No 8), aged 13, is considered in Table IV. Two others (Nos 19 and 191) are considered in Table III The other (No 98) is considered in Table IIB (No 85) A patient with tuberculous glands (see Table IIB) Two patients had pleurisy only—No 150 (see Table IA) and No 11 (see Table IIA) Three (Nos 40, 131, and 166) died from pulmonary tuberculosis, their vital capacities being – 45 8 per cent four months before death in one case, – 71 9 per cent six weeks before death in another, and – 47 4 per cent six months before death in the third

The other 152 patients were definite cases of pulmonary tuberculosis, all were found to have a vital capacity of more than 10 per cent below normal, except (1) No 15 and (2) No 55 (see table), (3) No 115 (returned – 9 4 per cent, early good case, which did well), (4) No 139, (5) No 150 (6) No 157, (7) No 164, (8) No 168, (9) No 178, and (10) No 196 (see table)

In 116 cases the vital capacity has been taken on more than one occasion It was found to increase by at least 2 per cent in 44 cases *It was found to have decreased by at least 2 per cent in 39 cases* It varied less than 2 per cent in 27 cases In the remaining 6 cases it varied—sometimes increased, sometimes decreased

I —*Cases in which the Vital Capacity has Increased.*

We will deal first with the 44 cases in which the vital capacity has increased by at least 2 per cent.

A *Vital Capacity Increased by 2 per cent or more but less than 10 per cent*

1 No 35 Male, aged 40 Infiltration one apex Improved by hospital treatment and returned to work Is now about stationary Has fibrosis at the apex T B +, but signs not spreading

April, 1919 – 15 7 October, „ – 11 6	*March, 1920* – 12 0

2 No 53 Male aged 42 Early signs L apex Improved in hospital Can do light work T B +

May, 1919 – 23 3	February, 1920 – 15 6

3 No 67 Male, aged 51 Advanced disease L side T B + *Getting rapidly worse Artificial pneumothorax performed June, 1919 In bed for six weeks and then began to improve steadily* Is now at work and no T B Vital capacity has increased, although one lung is now completely collapsed

May, 1919 – 34 8 October, „ – 41 9 January 1920 – 38 8	March, 1920 – 34 8 April, „ – 32 8

4 No 74 Female aged 30 Advanced signs Fibrosis taking place Doing housework T B +

May, 1919 – 39 1 September, „ – 37 3	March, 1920 – 36 9

5 No 84 A *delicate boy of 9 Chronic bronchitis and asthma* No T B Keeping at school, much better during the present fine weather

May, 1919 – 24 4 February, 1920 – 26 6	April, 1920 – 16 0

6 No 126 Female, aged 27 Infiltration R apex T B + Improved at sanatorium No T B now, and very few signs

June, 1919 – 8 7	March, 1920 – 3 3

7 No 148 Male aged 30 *History seven years Fibrosis* L apex worse recently T B + Improved considerably at sanatorium Now at work

June 1919 – 16 4	March, 1920 – 7 6

8 No 150 Male, aged 30 History of pleurisy Signs of thickened pleura No evidence of active pulmonary tuberculosis Improved at sanatorium

June, 1919 – 6 7	March, 1920 – 3 0

9 No 175 Male aged 39 Slight signs one apex Improved in hospital Now at work T B +

September, 1919 – 21 1	March, 1920 – 15 0

10 No 183 Male aged 37 Considerable signs L lung Improved at sanatorium, and is now starting work again Still T B +

September, 1919 – 28 6 February, 1920 – 19 0	April, 1920 – 19 8

11 No 192 Female, aged 21 Advanced signs both lungs Has not lost weight and is able to get about Signs unchanged T B +

October, 1919 – 42 6	January, 1920 – 37 2

This case and No 256 illustrate well how the general condition of patients may be improved by hospital treatment even in advanced consumption

12 No 204 Boy, aged 17 Early signs L apex T B + Improved at sanatorium Still T B +

October, 1919 – 10 2 January, 1920 – 1 9	February, 1920 – 2 5 April, „ – 3 0

13 No 217 Male, aged 48 Slight signs one apex History 8 months T B + Improved at sanatorium Is now holding his own

November, 1919 – 27 3 *January, 1920* – 19 7	February, 1920 – 23 4 *April,* „ – 20 7

14 No 222 Male, aged 29 Infiltration R apex T B + Slightly better and is now in sanatorium

January 1920 – 21 5 February, „ – 19 4	March, 1920 – 19 4 April, „ – 18 7

In connexion with this case it is interesting to observe how very similar the vital capacity readings are They were taken at intervals of a month, during the patient's hospital treatment the last reading after 10 days at sanatorium It well illustrates that vital capacity does not vary in the same individual without variation in health

15 No 223 Male, aged 36 History three years One apex affected Improved after two months hospital treatment, January and February Is now doing light work T B +

January, 1920 – 21 2	*April 1920* – 16 3

16 No 230 Male, aged 23 Infiltration L apex T B + Improving in hospital

January, 1920 – 20 3	March 1920 – 16 1

17 No 234 Male aged 42 Bronchitis No T B and no signs of pulmonary tuberculosis At work

January, 1920, + 1 5	April, 1920 + 6 2

18 No 238 Male aged 28 Neurasthenia and debility No signs in lungs

January, 1920 – 3 7	April 1920 + 3 3

19 No 245 Male, aged 40 Slight signs and T B + in 1919 Left Frimley January 1920 *No T B now*

January, 1920 – 4 7	March 1920 – 1 0

20 No 256 Male aged 48 Advanced case, recently had breakdown Improved in hospital T B +

January, 1920 – 41 2	March, 1920 – 32 6

21 No 258 Male aged 40 *Advanced signs left lung* T B + and pyrexia a year ago Artificial pneumothorax performed May, 1919, and he is now better and working on a farm

January, 1920 – 39 3	April 1920 – 34 6

22 No 262 Male, aged 19 Early signs one apex T B +, Improved in hospital and is now in sanatorium

February, 1920 – 15 2	April, 1920 – 5 8

23 No 269 Female, aged 17 Early signs and T B + Improved in hospital and now in sanatorium

March, 1920 – 9 5	April, 1920 – 7 5

24 No 271 Male, aged 27 Acute infiltration R apex Improved and is now in sanatorium T B +

March, 1920 – 26 4	April, 1920 – 21 3

25 No 283 Male, aged 19 Acute infiltration one apex T B + Improved in hospital and is now at sanatorium

March, 1920 – 23 6	April 1920 – 18 3

In connexion with this series it is interesting to note that in no case do the vital capacity findings differ from the clinical observation of the patient

B *Vital Capacity Increased by more than 10 per cent*

26 No 6 Boy, aged 16 No definite signs Now at full work

April 1919 – 7 8	February, 1920 + 3 7

27 No 11 Boy, aged 17 In hospital for pleurisy No T B Improved in hospital and went to sanatorium in June Great improvement there and is now at work feeling well

April 1919 – 25 1 May „ – 22 2 October, „ – 3 8	January, 1920 – 5 6 April, „ – 4 2

28. No. 61. Male, aged 42. Acute disease and many signs. Improved considerably in hospital. T.B.+
May, 1919 – 49·9 | October, 1919 – 32·1

29. No. 63. Female, aged 23. Improved in sanatorium in July, August, September, last year. Now doing housework. T.B. +. One apex infiltration and fibrosis.
May, 1919 – 21·9 | January, 1920 – 10·5

30. No. 92. Female, aged 23. One apex. T.B. +. Great improvement. No T.B. now. No signs of activity.
May, 1919 – 25·0 | March, 1920 – 1·9

31. No. 127. Female, aged 23. Early infiltration R. and L. apices. No T.B. found. Great improvement in sanatorium. Now at work.
June, 1919 – 38·8 | March, 1920 – 5·6

32. No. 129. Female, aged 28. Early signs one apex. No T.B. found. Great improvement in sanatorium. No signs now.
June, 1919 – 12·8 | March, 1920 + 7·6

33. No. 158. Male, 33. Infiltration both lungs. Fibrosis and steady improvement in sanatorium. T.B. +.
September, 1919 – 31·8 | April, 1920 – 17·8
January, 1920 – 22·9 |

34. No. 161. Male, aged 41. Early infiltration one apex. No T.B. Great improvement in hospital. Now full work.
September, 1919 – 27·5 | April, 1920 – 2·2
January, 1920 – 17·5 |

35. No. 181. Male, aged 37. Signs of bronchitis only. No T.B. Improved in hospital. Now at work.
September, 1919 – 10·4 | *March, 1920 + 2·3*

36. No. 189. Male, aged 30. Slight sign R. apex. T.B.+. Improved in hospital and lost the T.B. In sanatorium until April, 1920. No T.B. and no signs of activity now.
October, 1919 – 12·6 | January, 1920 + 3·9
November, ,, + 4·6 | April, ,, + 11·7

37. No. 208. Male, aged 39. Infiltration one apex. Improved in sanatorium. Now light work. T.B.+.
October, 1919 – 33·5 | March, 1920 – 22·3

38. No. 210. Male, aged 38. Severe bronchitis. No T.B. found. Improved in hospital.
October, 1919 – 36·2 | March, 1920 – 24·5

39. No. 212. Male, aged 19. Early infiltration R. apex. T.B.+. Still in sanatorium. Great improvement.
November, 1919 – 12·6 | February, 1920 – 3·7
January, 1920 – 4·9 | April, ,, + 1·7

40. No. 213. Male, aged 37. History nine years. Fibrosis L. lung. Infiltration R. lung. Considerable improvement in hospital. T.B. +.
November, 1919 – 41·0 | January, 1920 – 25·0

41. No. 214. Male, aged 36. Early infiltration one apex. T.B. +. Improved in hospital and is now in sanatorium. Slight relapse in January with coloured sputum.
November, 1919 – 29·6 | February, 1920 – 19·1
January, 1920 – 16·2 | April, ,, – 13·3

42. No. 216. Male, aged 30. Bronchitis following influenza. No T.B. Improved in hospital.
November, 1919 – 18·6 | April, 1920 – 7·2

43. No. 221. Male, aged 28. Good general condition, but T.B. +. Signs L. apex and repeated hæmorrhages. Artificial pneumothorax done October, 1919, but signs noted on R. side and L. lung allowed to expand again February, 1920. Good progress now.
January, 1920 – 59·9 | April, 1920 – 35·7
February, ,, – 58·1 |

44. No. 261. Male, aged 30. Infiltration one apex. Recently had pleurisy. Improving and now in sanatorium. T.B. +.
February, 1920 – 30·8 | April, 1920 – 20·4

II.—*Cases in which the Vital Capacity has Decreased.*

A. *Vital Capacity Decreased by 2 per cent. or more but less than 10 per cent.*

1. No. 15. Male, 34. Signs L. apex. T.B. + at first, but no T.B. on leaving sanatorium, April, 1919. Since then not so well.
April, 1919 – 8·5 | October, 1919 – 12·0

2. No. 28. Male, aged 44. T.B. +. Infiltration R. and L. apices. Went to sanatorium, but left not so well after six weeks.
April, 1919 – 25·2 | February, 1920 – 30·2

3. No. 50. Male, aged 43. Bronchitis and emphysema. No T.B No clinical change in his condition.
May, 1919 – 13·1 | February, 1920 – 17·7

4. No. 64. Girl, aged 18. Many signs R. apex. T.B. +. Slowly getting worse.
May, 1919 – 18·0 | October, 1919 – 23·9

5. No. 93. Male, aged 50. Infiltration R. apex. T.B. +. Went to sanatorium, but made no improvement. Slowly getting worse.
May, 1919 – 17·3 | March, 1920 – 23·3

6. No. 97. Male, aged 36. Severe bronchitis and asthma. Getting worse, and unable to work.
May, 1919 – 40·1 | February, 1920 – 49·5

7. No. 121. Male, aged 53. Infiltration R. apex. Getting worse. T.B. +.
June, 1919 – 28·5 | February, 1920 – 33·9

8. No. 135. Male, aged 23. Left sanatorium in May, 1919. No signs found there, and T.B. never found. Was sent to sanatorium because of hæmoptyses. Since leaving he has had several more hæmoptyses, but T.B. never found. Tuberculin test negative. X ray shows no sign of lung disease. The clinical evidence, therefore, agrees that he is not tuberculous.
June, 1919 + 14·0 | March, 1920 + 7·8

9. No. 139. Male, aged 30. Indefinite signs. T.B. + a year ago, but no T.B. June, 1919, or now. Recently has been losing weight and feeling easily tired.
June, 1919 – 5·2 | April, 1920 – 7·4

10. No. 152. Male, aged 34. T.B. + a year ago. Improved in sanatorium, and is still keeping at work but feeling run down, and cough has returned. No T.B.
September, 1919 – 13·0 | March, 1920 – 18·5

11. No. 155. Male, aged 23. Infiltration R. and L. apices. T.B.+. Went to sanatorium, but made no progress.
September, 1919 – 30·5 | March, 1920 – 37·9

12. No. 157. Boy, aged 17. Slight signs L. apex. Hæmoptysis. Went to sanatorium, but made no progress. Left in February and has been worse since. T.B.+.
September, 1919 – 5·8 | March, 1920 – 12·6
January, 1920 – 4·9 |

13. No. 176. Male, aged 30. Indefinite signs and no T.B. at first. Definite signs developed and T.B.+. In sanatorium, but not doing well.
September, 1919 – 5·4. | February, 1920 – 12·7
January, 1920 – 7·7. | April, ,, – 11·0

14. No. 184. Male, aged 25. Early case, following pleurisy. Is now in sanatorium, but not doing well. T.B. +.
September, 1919 – 19·8 | April, 1920 – 25·0
January, 1920 – 23·0 |

15. No. 196. Male, aged 32. Left sanatorium September, 1919. Returned to full work. Cough returned during winter, and he became worse. Keeping at work. Indefinite signs. T.B. +.
October, 1919 – 5·1 | April, 1920 – 12·7
January, 1920 – 14·4 |

16. No. 211. Male, aged 44. Advanced signs L. lung. Artificial pneumothorax done May, 1919. Considerable improvement, and he went to sanatorium. Had influenza in March, and was in bed for three weeks. Improving again now. T.B. +.
November, 1919 – 54·8 | April, 1920 – 60·2
January, 1920 – 51·8 |

17. No. 244. Male, aged 31. Infiltration R. apex. Is now in sanatorium, but not improving. T.B. +.
January, 1920 – 20·6 | February, 1920 – 24·5

B. *Vital Capacity Decreased by 10 per cent. or more.*

18. No. 21. Male, aged 35. Infiltration one apex. T.B. +. Went to sanatorium but left in September, 1919, having made no progress and is now much worse.
April, 1919 – 20·6 | February, 1920 – 36·9

19. No. 22. Male, aged 62. Infiltration both apices. T.B. +. Getting worse and signs extending.
April, 1919 – 18·0 | February, 1920 – 33·6

20. No. 24. Boy, aged 18. Early signs left apex. Spread to R. lung. Now advanced signs both lungs. T.B. +.
April, 1919 – 13·0 | April, 1920 – 40·6
January, 1920 – 37·5 |

21. No. 41. Male, aged 39. Out-patient. Advanced signs. Much worse. T.B. +.
April, 1919 – 32·9 | April, 1920 – 57·4

22. No. 52. Boy, aged 19. Early infiltration. T.B. +. Went to Frimley and got much worse. Now in bed at home.
May, 1919 – 11·1 | February, 1920 – 27·9

23. No. 54. Male, aged 34. Extensive signs left lung, following pleurisy. T.B. +. Got worse, but went to Frimley and held his own. Not doing well.
May, 1919 – 23·7 | April, 1920 – 35·3
January, 1920 – 40·1 |

24. No. 55. Boy, aged 18. Early signs R. apex. Disease spreading rapidly. T.B. +.
May, 1919 – 8·2 | September, 1919 – 23·0

25. No. 58. Male, aged 39. Long history. T.B.+. Active signs R. lung.
May, 1919 – 29·1 | May, 1920 – 40·0
February, 1920 – 36·6 |

26. No. 62. Male, aged 33. Advanced disease. Attending out-patients and steadily getting worse. T.B.+.
May, 1919 – 48·1 | March, 1920 – 62·1
October; ,, – 53.9 |

27. No. 78. Male, aged 31. Hæmoptysis and signs L. apex. T.B.+. Artificial pneumothorax done March 1919. Apparently holding his own and no T.B. now.
May, 1910 – 40·5 | March, 1920 – 50·7
October, ,, – 49·0 | April, ,, – 51·8

28. No. 79. Female, aged 30. Signs R. and L. lungs. Getting worse. T.B.+.
May, 1919 – 21·0 | October, 1919 – 35·7

29. No. 85. Boy, aged 16. Tuberculous glands of neck and old peritonitis. In February, 1920, he was clinically better. Is now in sanatorium.
May, 1919 – 7·7 | February, 1920 – 17·9

30. No. 98. Boy, aged 13. Debility, but no sign of organic disease. Is still attending school. Looks very delicate, but no definite physical signs.
May, 1919 + 2·2 | April, 1920 – 8·5
February, 1920 – 3·0 |

31. No. 107. Boy, aged 18. Signs R. and L. lungs. *Poor condition* and T.B. +, though just returned from sanatorium, May, 1919. Since then getting steadily worse.
May, 1919 – 25·2 | February, 1920 – 40·4
October ,, – 35·5 | April ,, – 39·4

32 No 168 Male, aged 29 Early infiltration R apex Went to sanatorium but failed to improve Since leaving in January he has been much worse T B +.

September, 1919 – 5 6 | March, 1920 – 20 1
January, 1920 – 9 7 |

33 No 171 Male, aged 26 *Indefinite signs* T B + Went to sanatorium but made no improvement Since leaving in November, he became worse Definite signs at R apex now found

September, 1919 – 7 6 | April, 1920 – 23 4

34 No 178 Male, aged 20 Slight signs L apex T B + Went to sanatorium but became much worse Now living at home and not working

September, 1919 – 2 2 | March, 1920 – 25 7
January, 1920 – 25 7 |

35 No 205 Male, aged 30 Extensive disease spreading quickly in left lung T B + Artificial pneumothorax done in October, 1919, since when his temperature has been *normal*, but he is slowly losing ground

October, 1919 – 22 2 | March, 1920 – 46 7
January, 1920 – 42 1 |

36 No 229 Male, aged 51 Extensive signs Much worse T B +

January, 1920 – 39 2 | April, 1920 – 59 4

37 No 251 Male, aged 30 Extensive signs left lung T B + Pyrexia and signs spreading. Artificial pneumothorax done in March, since when he has improved

January, 1920 – 38 2 | April, 1920 – 64 1

38 No 252 Male, aged 46 Signs both lungs T B + Much worse

January, 1920 – 44 4 | April, 1920 – 58 6

39 No 254 Male, aged 23 Signs both lungs T B + Much worse and now bedridden

January, 1920 – 38 9 | April, 1920 – 70 6

III —*Cases in which the Vital Capacity has Varied by less than 2 per Cent.*

1 No 5 Male, aged 39 Fibrosis L lung T B + Clinically, slightly worse and going down hill Not working, attending out patients

April, 1919 – 50 0 | February, 1920 – 50 6

2 No 19 Schoolboy, aged 13 No definite physical signs Looks delicate and has dyspnœa X ray evidence of bronchial glands

April, 1919 – 23 1 | April, 1920 – 23 6
February, 1920 – 27 5 |

3 No 27 Boy, aged 18 Acute infiltration left lung and slight R T B + following influenza Improved in hospital and sanatorium, but is now unable to work

April, 1919 – 39 2 | February, 1920 – 39 2

4 No 57 Male, aged 45 Infiltration R and L lungs Improved *in sanatorium and is now attending out-patients* T B +

May, 1919 – 63 3 | February, 1920 – 61 9

5 No 76 Girl, aged 18 Extensive fibrosis *Condition stationary* T B +

May, 1919 – 35 7 | February, 1920 – 33 8

6 No 69 Female, aged 21 Acute signs R and L lungs Settled down and now able to get about T B +

May, 1919 – 33 5 | February, 1920 – 32 5

7 No 106 Male aged 45 Previously T B + Now signs of fibrosis, but no T B Keeping at work Disease apparently stationary

May, 1919 – 30 1 | February, 1920 – 29 5

8 No 145 Boy, aged 14 No signs of disease Keeping fit and at school

June, 1919 – 0 1 | March, 1920 – 1 0

9 No 147 Male, aged 31 *No clinical evidence of disease*

June, 1919, + 6 1 | March, 1920 + 4 0

10 No 149 Male, aged 40 *Indefinite signs* T B *never found* keeping well

June, 1919 – 2 5 | March, 1920 – 1 0

11 No 156 Male, aged 19 No definite signs No T B Keeping well

September, 1919 – 3 7 | March, 1920 – 1 7

12 No 172 Man, aged 26 Delicate and occasional evening pyrexia No definite signs and no T B found

September, 1919 – 6 6 | February, 1920 – 4 3
January, 1920 – 16 1 | April, ,, – 6 6

In this case the patient had been in bed with mild influenza in January

13 No 179 Male, aged 28 Infiltration R apex T B – Holding his own

September, 1919 – 17 0 | March, 1920 – 18 3

14 No 185 Male, aged 23 T B + Infiltration both apices No change

September, 1919 – 33 5 | January, 1920 – 33 7

15 No 190 Male, aged 54 Chronic case Fibrosis R lung T B + Keeping at work

October, 1919 – 13 5 | April, 1920 – 12 9
January, 1920 – 14 5 |

16 No 191 Boy, aged 11. *No definite signs of disease*

October, 1919 – 8 8 | March, 1920 – 6 1

17 No 209 Male, aged 29 Slight infiltration left apex No T B Delicate, and disease apparently now arrested

October, 1919 – 12 2 | April, 1920 – 12 5
January, 1920 – 20 5 |

18 No 219 Male, aged 30 No definite signs and good general condition T B +

January, 1920 + 13 9 | April, 1920 + 15 0

19 No 227 Boy, aged 18 No physical signs

January, 1920 – 1 2 | March, 1920 + 0 3

20 No 228 Male, aged 41 Slight fibrosis base of one lung No T B Well and at work

January, 1920 – 1 4 | April, 1920 – 0 9

21 No 236 Male, aged 30 Infiltration both lungs T B +. Just gone to sanatorium

January, 1920 – 40 6 | February, 1920 – 39 4

22 No 239 Male aged 39 Few signs L apex T B + Just gone to sanatorium

January, 1920 – 12 5 | April, 1920 – 13 8
March ,, – 10 4 |

23 No 246 Male, aged 27 Infiltration both lungs T B +. No change

January, 1920 – 42 6 | March, 1920 – 41 0

24 No 255 Male, aged 26 Early case Infiltration R apex. T B + Just gone to sanatorium

January, 1920 – 6 9 | February, 1920 – 7 9

25 No 257 Male, aged 51 Chronic case Artificial pneumothorax for over two years Stationary condition

January, 1920 – 48 4 | April, 1920 – 46 7
March, ,, – 46 9 |

26 No 266 Male, aged 28 Infiltration R apex T B + No apparent change

February, 1920 – 24 0 | April, 1920 – 23 4

27 No 267 Male, aged 25 Indefinite sign At sanatorium No T B

February, 1920 – 1 5 | April, 1920 – 0 3

IV.—*Cases in which the Vital Capacity Varied—sometimes Increased, sometimes Decreased.*

1 No 8 Boy of 13 Delicate and has had pleurisy No definite physical signs, and his condition was apparently the same on all three examinations

April, 1919 – 25 1 | April, 1920 – 21 0
February, 1920 – 30 2 |

2 No 25 Male, aged 42 This patient was bedridden T B + Extensive signs R lung, for which an artificial pneumothorax was done in March, 1919 *After this he improved and is still able to get* about Clinically his condition is much better than in April, 1919, but about the same as, or slightly worse than, in October, 1919

April 1919 – 59 7 | March 1920 – 56 1
October, ,, – 26 9 |

3 No 37 Female, aged 21 Extensive signs both lungs with fibrosis She improved in sanatorium which she left in August, 1919 Apparently holding her own since T B +

April, 1919 – 22 2 | March, 1920 – 21 0
September, ,, – 14 9 |

4 No 180 Male, aged 24 Enlarged glands of neck No other evidence of tuberculosis Keeping well and at work No clinical reason for variation in vital capacity

September, 1919 – 7 5 | April 1920 – 6 8
March, 1920 – 21 1 |

5 No 207 Male, aged 31 Very advanced signs one lung T B +. Artificial pneumothorax March 1920 since when he was able to get about, and is apparently holding his own

October, 1919 – 56 1 | March, 1920 – 45 7
January, 1920 – 36 5 |

6 No 215 Male, aged 39 Infiltration R and L lungs T B + History two years Apparently remaining stationary

November, 1919 – 42 1 | February 1920 – 40 3
January, 1920 – 30 6 | April – 31 7

Conclusions.

From the careful analysis of the cases given in detail above, the following conclusions seem to be justified.

1. In cases of pulmonary tuberculosis there is a definite decrease in vital capacity as compared with what should be normal for any individual, taking into account the class in which this individual should be placed according to occupation and mode of life

2 An improvement in the clinical condition of the patient is found to be accompanied by an increased vital capacity, while an advance of the disease results in a decrease in vital capacity. The vital capacity, therefore, gives a valuable quantitative measure of the benefit, if any, which a patient receives as the result of treatment.

3 The determination of the vital capacity is useful for the classification of cases of pulmonary tuberculosis, because it is possible by this means numerically to express the injury to health (e g, degree of toxæmia) which otherwise would depend on the individual interpretation of physical signs by different observers. In this connexion it should be noted that classification by physical signs alone may place a patient nearing death from an acute lesion in a high category, while another

patient, with satisfactory fibrosis and extensive cavitation, likely to live for several years, may be placed in the lowest category.

4. As an aid to diagnosis a single or repeated examination of the vital capacity of doubtful cases will also prove useful. If a normal vital capacity is found in such cases, the patient is most unlikely to be suffering from pulmonary tuberculosis, whereas if the vital capacity is much decreased the patient should be suspect, though it must always be borne in mind that other diseases may also cause a lowering of the vital capacity.

5. Finally, a systematic study of the vital capacity in its proper relationship to body size has given important information as to the beneficial effects of different treatments of pulmonary tuberculosis, and has made it possible to distinguish quantitatively the degrees of improvement.

Our thanks are due to Dr. J. J. Perkins and other members of the staff of the Brompton Hospital, who kindly have placed their cases at our disposal for this investigation. We also wish to thank Dr. F. G. Hobson, D.S.O., and Mr. G. F. Hanson, late Lieutenant, U.S.A. Medical Air Service, for kind help in various ways.

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BLOOD TRANSFUSION:

ITS THEORY AND PRACTICE.[1]

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SINCE the end of the war there has ceased to be any pressing need for doing blood transfusion on a large scale, and its great importance has therefore tended to fall into the background. However, it constitutes one of the biggest advances that has resulted from the practice of military surgery, and it is thus desirable that knowledge of the methods employed should be diffused as widely as possible.

Probably few lectures on blood transfusion given have been without a reference to the transfusion supposed to have been performed in 1492 upon Pope Innocent VIII., the authenticity of which must, however, be discredited. It is, on the face of it, improbable that a blood transfusion should have been attempted before the discovery, about 1616, of the circulation of the blood. The truth is that in order to restore the Pope's health three boys were bled to death and a draught prepared from their blood, but that this failed of its effect. It is of much greater interest to notice that in Sprat's History of the Royal Society, 1667, it is recorded that the versatile Sir Christopher Wren "was the first Author of the Noble Anatomical Experiment of Injecting Liquors into the Veins of Animals. By this Operation divers Creatures were immediately purg'd, vomited, intoxicated, kill'd, or reviv'd according to the quality of the Liquor injected. Hence arose many new Experiments, and chiefly that of Transfusing Blood, which the Society has prosecuted in sundry instances, that will probably end in extraordinary Success." In my own copy of the book an eighteenth century hand has written large in the margin "It failed," and that was the fate of most subsequent attempts. It has been left for a later age to achieve the "extraordinary success" predicted two and a half centuries ago.

Indications for Blood Transfusion.

It is first necessary to consider what are the indications for blood transfusion; these may be stated shortly as (1) collapse due to any sudden and severe loss of blood, with or without the additional collapse-producing factor introduced by "shock"; and (2) anæmia due to slow and prolonged loss of blood corpuscles by hæmorrhage or by pathological destruction.

It was unusual during the war to meet with patients who were in danger of their lives from loss of blood alone without the presence of traumatic shock, but such cases did occur, and they will also be met with in civil practice—as, for instance, in attempted suicide by throat cutting, in gastric ulcer with severe hæmatemesis, in secondary hæmorrhage after operation, and in hæmophilia. The more typical condition following war wounds—hæmorrhage with traumatic shock—will be faithfully reproduced in the victims of train or street accidents, in patients who have undergone certain severe operations, and in women suffering from post-partum hæmorrhage or a ruptured ectopic gestation.

The signs and symptoms of acute anæmia need not be detailed here, though it may be mentioned that the "amaurosis" of the text-books is not a symptom that is commonly met with in practice. The signs that are of the most use are the pulse-rate, the blood pressure, and the hæmoglobin content. It has been stated that a blood pressure below 70 mm. of mercury is scarcely compatible with life, but this is not in accordance with experience. It was common in France to meet with blood pressures below 45 mm., so low, in fact, that they could scarcely be measured, but many patients whose lives had reached even so low an ebb as this were quickly restored by the administration of blood, provided that the exsanguined state had not lasted for too long a time. It is doubtful how far blood transfusion is of use in the treatment of shock unaccompanied by hæmorrhage, since the condition here is largely one of an increased viscosity of the blood with accumulation of the corpuscles in the capillaries. Should blood transfusion be proved to have more effect than other restoratives it will be administered in much smaller quantities than are necessary for the treatment of hæmorrhage. Blood transfusion has been found of the greatest service in the treatment of hæmophilia, for not only can the blood lost be thus replaced, but also it is found that the introduction of the normal blood temporarily confers upon the patient's blood the power of coagulation, so that the bleeding ceases. This effect is not interfered with by the presence of an anticoagulant in the transfused blood. Evidence is accumulating that blood transfusion can be used with good effect in pernicious anæmia, and there is little doubt that blood is destined to be an important therapeutic agent in the treatment of blood diseases.

The Quantity of Blood to be Given.

In considering how much blood should ordinarily be given in the treatment of acute anæmia, experience is a safer guide than any theoretical considerations.

It is difficult to estimate accurately the total quantity of blood in the body of an adult, but it has been variously stated by physiologists to be from seven to ten pints. It is still more difficult for obvious reasons to estimate how much blood a man can lose and yet remain alive. This will depend partly on the power of physiological accommodation possessed by the individual in his vaso-motor system and tissue fluids, and partly on the rapidity with which the bleeding takes place. Under certain circumstances it is better that the bleeding should be at first more rapid than can be compensated for by these processes, for the immediate syncope which results produces so great a fall in blood pressure that hæmorrhage almost ceases, with the result that a clot forms in the lumen of the divided vessel. Experience shows us that hæmorrhage may take place into the peritoneal or the pleural cavities to the extent of three pints or more, and it may be stated as a rough guess that four pints, or possibly as much as half the total blood volume, may be lost without immediate death resulting. It is interesting to find that in the treatment of hæmorrhage it is not necessary to administer an amount of blood even approaching these quantities, for in most cases the balance between the volume of the circulating blood and the output of the heart is sufficiently restored by the administration of 650 to 1000 c.cm. of blood. Further fluid can then be given by the mouth or by the rectum. It may sometimes happen that a patient already in extremis from loss of blood needs a severe operation, and in such a case two transfusions of 800 c.cm. each may be given with advantage, the first to revive the patient, the second to combat the additional shock and hæmorrhage caused by the operation. The gum-arabic solution, which was introduced in the last year of the war as a substitute for blood, did not in practice altogether justify the hopes that had been founded on the good results obtained in the laboratory; it is certainly better than the normal or hypertonic saline formerly used for transfusion, but blood, when obtainable, is still better.

Relative Importance of Corpuscles and Serum.

The mention of gum introduces the question as to whether it is the corpuscles or the serum that is the more important constituent of the transfused blood.

Doubt has been expressed as to whether the transfused corpuscles carry out their function as oxygen carriers in the recipient; but since it has been proved that the corpuscles of transfused blood can both live and keep their normal appearance for more than 30 days in the recipient's circulation, it seems reasonable to suppose that they are functional Permanent restoration of blood volume is undoubtedly the chief result to be aimed at, but the physiological functions of all the constituents of the transfused fluid cannot be regarded as unimportant It is possible that the foreign blood has the power of stimulating the regeneration of blood cells and of restoring the tone of the body generally, but this is a subject which demands further investigation

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[1] The substance of two clinical lectures delivered at the Professorial Surgical Unit, St. Bartholomew's Hospital.

"*Blood Groups*"

Much has been written during the past two years on the division into "blood groups" and its practical application

For practical purposes human beings have been divided into four groups, according to the agglutinating reaction of their bloods, and this has eliminated the fatalities which used to result from transfusion with blood which is incompatible with that of the patient There can seldom be any reason at the present time for performing a transfusion without first testing the donor for his blood group, since the sera of Groups II and III can always be kept in stock and the test of donor and recipient performed in a few minutes[2] Some operators have preferred to use a donor of the same group as the recipient rather than a member of Group IV, the so-called "universal donors", but there is no evidence that this confers any advantage It is true that the serum of Group IV agglutinates the corpuscles of all the other groups outside the body, theoretically this is an objection to the indiscriminate use of Group IV for transfusion, but as no ill effects result such agglutination presumably does not occur in the body This is interesting, because the amount of transfused blood is considerable relatively to that in the patient, and it must be presumed that the changes which occur in the body are different from those obtained outside it It has been suggested that the agglutinin is inactivated by the recipient's serum The blood groups depend upon differences in individuals, which are presumably inherited in a definite manner, since their numbers are found to maintain a constant proportion in any large population Although there seems to be some racial variation in the distribution of the blood groups, no physiological advantage, such as immunity to disease, has been demonstrated in connexion with them, and it would therefore be expected that inheritance would be carried on without the interference of natural or artificial selection Blood groups have been found among some animals, such as dogs, but others, such as rats and mice, do not seem to possess them Some authorities have even stated that a baby does not show its characteristic blood group for the first two years of its life, but gives the same reaction as its mother This does not agree with my own observations, which have shown that a baby may be of a different group from both its mother and father immediately after birth, and that the group does not change as the child grows older

The choice of a donor will therefore depend primarily upon his belonging either to Group IV or to the same group as the recipient It is necessary to make very careful inquiries for any history of a communicable blood disease, such as malaria or syphilis in the donor, his Wassermann reaction should be tested if possible The effect on the donor of the withdrawal of blood is never more than a transient faintness and varies very much with the individual One man, large and robust looking, may become faint after losing 400 c cm or less, another, to the eye less physically fit, may part with 1000 c cm and show no signs whatever The effect probably depends more on the donor's mental attitude towards the process than on the amount of blood lost

Disadvantages of Methods of Transfusion Formerly Used

All the earlier methods of transfusion depended on the direct transference of blood from the donor's arterial system to a vein of the recipient, but this process presents several disadvantages, the chief of which is the impossibility of knowing how much blood has been transfused The technical difficulties, too, are very great, even with the help of various ingenious devices, and the method is now chiefly of historical interest

A great improvement was introduced by the "paraffin tube" method the blood being allowed to run from the donor's vein into a vessel coated on the inside with paraffin and being transferred at once to the recipient This method allows of measurement of the amount of blood transfused, and the blood can be given without the admixture of any foreign substance, but other objections remain, the chief of which are the great difficulty of carrying out the process of paraffining a glass vessel quite perfectly, the absolute necessity for injecting the blood into the recipient immediately after it has been drawn and the fact that an open operation to expose the vein of the donor cannot be avoided The ideal method of blood transfusion seems to me to require that it shall be absolutely certain of success that the blood need not be injected immediately so that other circumstances besides the demands of the transfusion may be allowed for, and that no injury shall be done to the donor beyond the puncturing of a vein In addition to this the method should be so simple and free from special apparatus that it can be easily learnt and carried out by one operator without skilled assistance Blood transfusion is a life saving operation which should be capable of being carried out in a hospital by a house surgeon at the shortest notice, and an extensive experience should not be necessary in order to ensure success

The Citrate Method

All these requirements are fulfilled by the citrate method, and it is, I think, the method which should be taught at the present time

The blood can be drawn with the minimum amount of injury to the donor, when drawn it can be put on one side for several hours if necessary, and then given to the patient at whatever may be judged to be the best moment, the whole process can be carried out by a single operator unaided, and, finally but little practice is needed to make success certain every time The sodium citrate, with which the blood is mixed, forms a soluble compound with the blood calcium, which is thereby rendered inert as regards the coagulation reaction It may be objected that sodium citrate is a toxic substance and should therefore be avoided but the amount used is not large enough to produce any appreciable reaction in most patients I have been in the habit of using 160 c cm of a 3 8 per cent solution as was originally recommended by Robertson for any quantity of blood up to a litre, this amount may err on the side of excess, and it has been recently stated that 100 c cm of a 3 8 per cent solution is enough

Description of Apparatus and Technique

The transfusion apparatus known as "Robertson's bottle," first described by Oswald Robertson in 1918 is the basis of most citrate methods I soon found that it could be modified in the direction of simplicity, since in drawing the blood there is no necessity to create a negative pressure if a needle of a large enough bore (2 or 3 mm) be used (Fig 1)

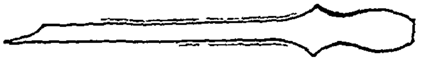

FIG 1 —Needle used for blood transfusion (full size) The bore should be 2 or 3 mm

The needle should be kept ready for use in liquid paraffin and after use should always be re sharpened on a bevelled hone When the donor's arm has been congested and a suitable vein chosen (usually the median basilic) the area of puncture is infiltrated with novocain, it is then only necessary to make a tiny cut in the skin with the point of a scalpel and to push the needle through into the vein The blood is then allowed to flow through a rubber tube, which hangs freely into a flask (Fig 2) containing the citrate and as it flows in it is thoroughly mixed with the citrate by gently swinging the flask It is convenient to use a graduated conical flask provided with a side tube and holding about a litre

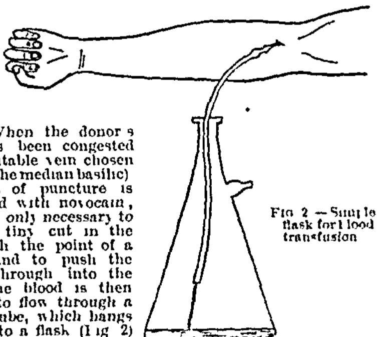

FIG 2 — Simple flask for blood transfusion

If a properly adjusted tourniquet is kept on the donor's arm while he works his forearm muscles by clasping and unclasping his hand a flow of blood is obtained which is fast enough to prevent clotting in the needle and indeed, quite as fast as most donors can stand. Blood up to 1000 c.cm. can be collected in this way in 10 to 20 minutes.

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[2] For a tabulation of the groups and their reactions see an article by A Fleming F R C S and A B Porteous, M B, in THE LANCET for June 7th 1919

As an additional precaution a few drops of paraffin may also be run through the rubber tube before drawing the blood. The flask of citrated blood can then be stood in a basin of warm water and put on one side until wanted or taken to the patient's bedside. When the needle has been withdrawn from the donor's vein, slight pressure must be maintained for a few minutes on the puncture with a swab to prevent any bleeding, but no suture is needed.

In the administration of the blood it is usually best to expose the median basilic or saphenous vein in the patient by an open operation. If the case is one of hæmorrhage or shock the patient's veins will be collapsed, and the direct introduction of a needle will sometimes be found difficult.

In giving the blood I have found it of great advantage to fix on the delivery tube of the flask an air-lock, as shown in Fig. 3. The barrel of this air-lock, with a rubber tube and cannula attached, is first filled with normal saline solution and the tube near the cannula is clipped. The cannula is then inserted in the patient's vein and tied in. The barrel is fitted on to the rubber bung through which the nozzle of the delivery tube projects, the clip is released, and slight positive pressure is produced in the flask by means of a rubber bulb attached to the side tube. The citrated blood rises in the delivery tube, displacing the saline solution in the air-lock to a lower level, and then flows from the delivery tube into the air-lock, displacing the rest of the saline solution, and so into the patient's vein. The introduction of the air-lock has two advantages: in the first place, it allows of the cannula being filled with saline, so that during the insertion in the vein there is no leakage of blood which would obscure the operation; in the second place, it is easy to regulate with nicety the time occupied in giving the blood and to be quite sure that it is flowing properly. If the patient is suffering from acute anæmia, 750 c.cm. of blood may be given in the course of 20 minutes; but if the condition is one of chronic anæmia due to a slow continuous oozing, the blood must be given much more slowly. It is dangerous in such cases to increase the blood volume rapidly, and three-quarters of an hour must be occupied in giving 500 c.cm.; even then the patient may complain of a feeling of tightness in the chest and dyspnœa, due to embarrassment of the right heart, during the transfusion. The apparatus can also be used with advantage in giving saline solution or gum.

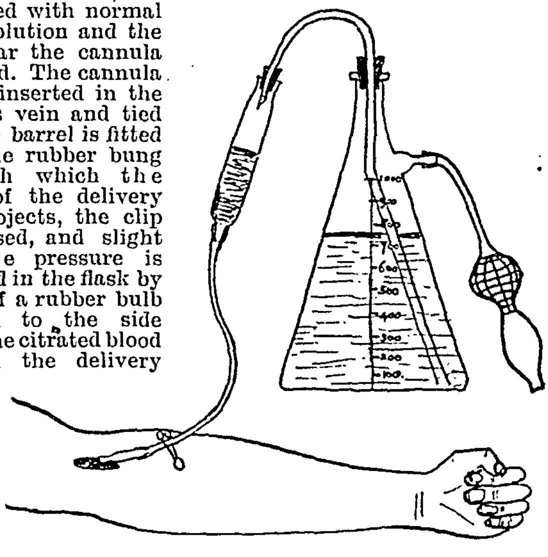

FIG. 3.—Showing air-lock in delivery tube of transfusion apparatus.

This technique is simple and straightforward at every stage, and can be easily demonstrated and learnt. Wide-bore needles (2 mm.) and a bevelled hone can be obtained from the General Surgical Company, Ltd., 147, Farringdon-road, London, E.C. The rest of the apparatus can be improvised in any laboratory.

FINANCIAL NEEDS OF DORSET HOSPITALS.—Dorset is the first county to have held a conference on the question of hospital requirements and the need for the continuance of the voluntary system. Lord Shaftesbury presided at the meeting, and it was stated that most of the institutions had an unfavourable balance. Sir Napier Burnett, formerly War Office hospital expert, stated that Dorset was not badly off as regards hospitals and the financial support accorded to them. Allusion was made to the fact that there were three hospitals "overlapping" at Weymouth, one of them having a deficit of £7000, and it was suggested that a conference of representatives of these three hospitals with the townspeople of Weymouth should be arranged and a scheme of coöperation formulated.

A STUDY OF CERTAIN EFFECTS OF OCCUPATION AND RACE ON THE HEALTH OF RECRUITS.

BY G. ROME HALL, M.D. DURH.,
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UNTIL conscription was applied men were never examined in large quantities taken out of a specified area of the nation. Now statistics can be applied over a given area to all men between 18 and 42; to all classes of life and occupation; to those well or considered well, though with defects of minor degree; and to the really ill or decidedly defective. For example, there must be about 2 million men whose feet are more or less defective who could probably have been cured under a State Medical Service supervising their growth. Few people, again, have any idea as to the grave neglect of skin hygiene and its far-reaching effects. The surprisingly high categories in which clerks were placed shows that this occupation need not be unhealthy; while the absolute ill-health of the Russian Jews as a whole, and the close approximation of Jewish lads of 18 born abroad, but reared in Britain, to the British standard at the same age, proves there is nothing radically wrong with the physique of the Jewish race.

Heart Cases and Complexion—Racial Type.

But it is in the heart statistics that the examination of a block of the population should give really interesting results. The opportunity to collect them has never occurred before. The minor cases do not come for treatment, since it means losing wages, or they attend for some other ailment and resent a complete examination.

An analysis of 2500 heart cases was made from among my own cases, men I was asked to see by other examiners, and recruits who stated they had heart trouble. Of these 40 per cent. only have what is popularly known as heart disease, that is V.D.H., or excessive myocardial change. The illness of 50 per cent. was due to want of tone and minor causes, nearly all quite curable if the people concerned had been in a good financial position. In other words, many of these will drift into invalidism and national inefficiency for want of a fair chance. Another interesting feature is the proportion of dark to fair people who figure in this list. Of the 2500 heart cases, the proportion of dark to fair was as 3 to 2, and since among the other recruits examined there were two fair to every one dark, heart trouble would appear to be three times as common amongst the dark elements. As regards hyperthyroid action the dark are affected in the proportion of 10 to 1.

Feet, Genitalia, Teeth, Clothing, Body-weight.

The conditions of feet, genitalia, teeth, and clothing of 8000 recruits were all personally examined. The *feet* were defective in 23·8 per cent. I consider at least 18 per cent. of these feet defectives would have been curable had they been taken early enough to a medical man. The main causes operating in early life are badly fitting boots, with the great toe forced away from its proper line, and insufficient nourishment, with overstrain during adolescence. These cases usually became flat-footed.

The *teeth* were bad, in a state affecting health in 42·5 per cent. of these recruits. The standard adopted was: (1) A deficiency of teeth, either actually causing ill-health or bound to do so at middle age, or earlier, if dentures were not supplied. (2) The presence of large dentures, which was taken to imply a spell of ill-health, usually chronic sepsis, in the years before they were obtained. (3) Sepsis, with or without loss of teeth.

The *genitalia* were not normal in 14·6 per cent. of these 8000 recruits, but 80 per cent. of the defects were nothing more serious than a varicocele. Having noticed from practice among primitive negroes that quite 1 in 3 of the younger men had some definite defect, usually due to phimosis, soft chancre, or gonorrhœa, it occurred to me to take this opportunity of making a racial comparison.

Varicocele amongst our recruits, usually of quite a minor character, and in some cases disappearing with the colder weather, accounted for four abnormalities out of five. It occurred rarely amongst primitive negroes; my belief is that it is caused when the patient is in a state of general atonia by pressure of clothing, not directly, but by pressure on the right side, transmitted to the left cord.

It was found on local inquiry that two out of three of our population put on a vest or shirt (if no vest is used) once a week, usually on Sunday, and never take it off until the next Sunday. Medical men who have lived abroad in the tropics know the vital need of keeping the skin at its highest point of efficiency, as vital a need as to wash an infant daily. Neglect of skin hygiene in the tropics soon means acute disease; here it not only means "chills," rheumatic fibroses, pulmonary attacks as acute reminders of neglect, but an unhealthy dry condition, which I am convinced is responsible for nearly all the early arterio sclerosis not due to infections. Twenty years of industrial practice had made me convinced of the existence of these unhygienic habits, but the opportunity to get definite figures was absent until now.

In 70 per cent. of a group of 2618 men something abnormal was noticed in the throat. In most cases it was only congestion of the soft palate or of the pharynx, usually attributable to colds, smoking, or sepsis from the teeth sockets. But a considerable number had had nasal obstruction of one kind or other, and a definite group had lesions referable to middle ear disease through the Eustachian tube.

Of 10,000 consecutive recruits examined 105, or 1.0 per cent., were under 100 lb. (7 st. 2 lb.) in weight and 50, or 0.5 per cent., over 200 lb. (14 st. 4 lb.) in weight. There were put in C III or rejected 44, or 0.4 per cent., as under weight, and 11, or 0.1 per cent., as too heavy; 191, or 1.9 per cent., were over 6 feet high and 69, or 0.7 per cent., were under 5 feet high.

Classification in Relation to Occupation.

The classification of 1000 each of middle class men, clerks, craftsmen, open air workers not "craftsmen" gave the following results:—

—	Middle class	Clerks	Craftsmen	Open air workers
	Per cent.	Per cent.	Per cent.	Per cent.
A, B I, B II*	62.2	66.5	62.8	65.0
C I, C II†	7.9	12.5	19.7	18.9
C III, B III	20.7	15.1	9.2	8.1
Rejected	9.2	5.9	8.3	8.0

* Foreign service. † Garrison and labour at home.
‡ Sedentaries.

In the above table the following points stand out. The clerks show the best results, being highest in the foreign service group and lowest in rejections. But being taken in the Kingston on Thames area they were mostly of a special class, having wages high enough to be able to live outside of London.

The results of two half years examinations at Kingston are here shown. The first half year ending June, 1916, refers to a time when the recruits largely came up voluntarily, there being an undue ratio of middle class men. The second half year ended December, 1916, being principally a call up of the working classes, the best of whom had enlisted early in the war prior to conscription.

1st Half Year.	Total.	%	*2nd Half Year.*	Total.	%
General service	7 600	48.4	A	7,383	29.0
Field at home	1 715	10.9	B I	4 731	18.5
Garrison abroad	1 283	8.2	II	1 911	7.5
home	407	2.6	III	347	1.4
Labour	1 758	11.2	C I	3 698	14.5
Sedentary (B III and C III)	1 787	11.3	II	3 851	15.1
Rejected	1 159	4	III	2 165	8.4
			Deferred	469	1.8
			Rejected	978	3.8
	15 709			25,528	

Field service at home, garrison abroad and a certain part of labour ("fit for labour abroad") of the first half year nearly equalled B I, B II (garrison and labour abroad), practically the same standards.

Of 20,141 recruits, 6.2 per cent., or 1248, were referred to the ophthalmic surgeon. Of these he rejected 2.5 per cent., or 31. In three cases out of five the ophthalmic surgeon gave the same grade in eyesight as the recruit had already been placed in for general physique, and nearly all rejections were from the low physical grades.

Differential Results in Racial Grading.

The following table was made up of recruits of different nationalities, all of military age (18–42).

Grade.	British.		Russian Jews.		Italians.
I	48.4	70.1	14.2	30.4	17
II	21.7		16.2		18
III a	8.0	11.2	23.1	35.6	28
III b	3.2		12.5		12
III c	11.3		10.6		12
Deferred	7.4		4.4	23.4	7
Rejected			19.0		6

Since the figures refer to 15,709 British, 1000 Russian Jews, and only 100 Italians they are not strictly comparable, but may nevertheless be of interest. The British figures are taken from examinations in the Kingston district in the first half year of 1916 translated into the new gradings. Only a minority of the deferred would have been ultimately rejected. Since the best men had enlisted voluntarily the percentage of Grade I is much lower than it should be. Foreign service men amounted to 70 per cent. Of the Russian Jews nearly 80 per cent. were sedentaries in occupation. A consecutive 1000 were taken, of whom 30 per cent. were fit for fighting units in physique, but not in mentality; 40 per cent. were fit for auxiliary service and labour; 30 per cent. had no military value. There had been no prior call up of the Russian Jews. Only 100 Italians were taken. Those left in England mostly followed sedentary occupations; the younger men had gone.

Boys and Youths.—The following statistics refer to boys and 18 year old recruits:—

Grade.	Boys.	British 18 years.	Russian Jews 18 years.	Grade.	Boys.	British 18 years.	Russian Jews 18 years.
I	86.8	72.1	67.5	III c	—	1.2	—
II	10.3	15.1	16.2	Def.	—	3.1	2.5
III a	2.9	4.7	10.0	Rej.	—	2.5	3.8
III b	—	1.3	—				

Def., deferred. Rej., rejected.

The "boys" were 175 youths between 14 and 17 years 6 months, nearly all being over 16. The British youths of 18 comprised 2000 from 17½ years up to 19, the majority within three months of 18 on either side, but mostly over 18. The number in Grades I and II is only 10 per cent. under that of the boys so classified. I estimate that fair play in work, housing, and feeding would result in 85 per cent. being Grade I. Of Russian Jews of 18, 80 were taken over 17 and 6 months and under 19; no more could be obtained. These were all born in the Russian Ghettoes, nearly all of German extraction, and, brought to England in early life, had passed through our schools. Although handicapped, like their elders, by dwelling house and workshop conditions, the difference between their grading and that of the adult Jews is most marked. In fact, it closely approached that of British lads of the same age. This proves that there is nothing radically wrong with the race. Out of over 1700 Russian Jews examined only 11 were volunteers.

The reasons for rejections amongst the 2000 youths were as follows: poor physique, 3; deformities, 6; epilepsy, 3; mental deficiency, 6; pulmonary tuberculosis, 11; other tubercle, 4; valvular disease of heart, 8; eye disease, 3; hernia, 1; syphilis, 1; chronic meningitis, 1; eczema, 1; total, 51. Under an efficient State Medical Service, which includes proper feeding where necessary, 30 of the above invalids, or 3 out of 5, should not occur.

The Russian Jews and the Racial Incidence of Disease.

The differential analysis taken from a consecutive 1000 Russian Jews shows the following results:—

—	Total.	Rejected.	Rejections caused by tuberculosis.
Tailors and auxiliary trades	520	17·2 %	8·8 %
All others	480	20·7 %	8·9 %

The above were the first 1000 of the younger men. As time went on the results as to tubercle became worse, until the final figures showed 12·5 per cent. rejected. The Russian Jews suffering from healed and latent tubercle in workshop employ were passed for army workshops.

The following table shows the racial incidence of disease, as recorded on recruits' medical history sheet, also some other facts. The numbers affording this table are: British, 1100; Russian Jews, 1370; in consecutive groups.

—	British.	Russian Jews.	Remarks.
Illiterates	2 (0·2 %)	509 (37·1 %)	
Eyes, colour	353 (32·1 %) (not blue).	272 (20·0 %) (not brown).	
5 ft. 6 in. and under	494 (44·9 %)	1066 (77·8 %)	Normal English-man, 5 ft. 6 in.
Sedentary work ...	279 (25·3 %)	1030 (75·2 %)	
Over-stout	10 (0·9 %)	72 (5·3 %)	2 st. overweight.
Throat and nose ...	23 (2·1 %)	92 (6·6 %)	
Eyes, not defective sight	8 (0·7 %)	108 (7·9 %)	Jews, mostly trachoma.
Ear diseases	35 (3·2 %)	100 (7·3 %)	
Tubercle, active ...	6 (2·1) 0·5 %	155 (19·2) 11·3 %	Pulmonary. Any "closed" form.
" latent ...	18 1·6 %	108 7·9 %	
Lungs, other diseases	55 (5·0 %)	185 (13·5 %)	
Syphilis	12 (1·1 %)	27 (2·0 %)	
Gonorrhœa	7 (0·6 %)	28 (2·0 %)	
Epilepsy	4 (0·3 %)	20 (1·4 %)	
V.D.H.	23 (2·1 %)	18 (1·3 %)	Only disease markedly less for Jews.
Other cardiacs ...	111 (10·1 %)	186 (13·6 %)	Including "sedentary" heart.
Gastrics and enterites	24 (2·1 %)	62 (4·4 %)	
Feet, defective ...	134 (12·2 %)	338 (24·7 %)	Refers to low-grade feet only.
Other diseases ...	143 (13·0 %)	359 (26·2 %)	
Spinal	33 (3·0 %)	36 (2·6 %)	See notes following.
Injuries	57 (5·2 %)	45 (3·3 %)	

Some other diseases were recorded, but the results were nearly the same. Only in V.D.H. is the percentage of cases among the Jews markedly less than among the British; they showed very little true rheumatism, but a marked amount of fibrositis, due to septic, colonic, and gonorrhœal (?) infections, and to hilar tuberculosis.

Out of the 19·2 per cent. cases of tuberculosis 12·5 were rejected, the ordinary closed or latent case, if doing efficient work in a workshop, was posted to similar duties in the army.

Injuries were increased amongst the British by the call up of previously wounded men, and among the Russian Jews by self-inflicted injuries, ulcers, burns (electric), mutilated fingers, &c. The percentage of spinal cases among the Russians is probably small, because such cases would be unlikely to emigrate from Russia.

"Other diseases" do not include varicocele. The dietary of the Russian Jews was deficient in proteins, excessive in starch, probably only the cheaper, vitamine-free, fats were used. They were markedly wanting in "fibrosity"; they tended after 30 to pendulous abdomen when not neurasthenic.

EASTBOURNE WATER-SUPPLY.—The Eastbourne Corporation have decided to buy up the Eastbourne Waterworks Company for the sum of £408,365. The further purchase of West Dean and Friston farms, the natural watershed of the district, by the corporation will ensure an unlimited and perpetual supply of the purest water, and these farms are to be acquired as soon as possible.

ACTINOMYCOSIS OF THE CÆCUM,

WITH NOTES OF AN UNUSUAL CASE.

BY E. G. SLESINGER, *O.B.E.*, M.S., F.R.C.S.,
ASSISTANT SURGEON, GUY'S HOSPITAL.

ACTINOMYCOSIS, as it affects the various parts of the human body, has been very carefully studied since the original papers of Israel and Ponfick, and a good deal is known about the characteristics of the disease in its three main regional distributions—the face and neck, the lungs, and the alimentary canal. In the latter situation, however, it has become apparent of recent years that actinomycosis is by no means the rare disease that it was formerly thought to be, and the more constantly its possible presence is borne in mind by the surgeon the more frequently will it be recognised in its early stages, with correspondingly better results in its treatment.

Of the recognised cases of actinomycosis approximately 20 per cent. are intestinal, but it would appear, at the least, doubtful whether this represents anything like the real figure. One of the reasons of such a doubt is that many are cases of actinomycotic infection of the appendix, which are satisfactorily dealt with by the usual methods of appendicectomy, the true nature of the case only becoming apparent in the course of routine examination of the removed appendix if such is undertaken. Further, it is unlikely that such cases as that reported in the present paper are of any unusual degree of rarity, and yet I have been unable to find any report of a case of a similar nature in a fairly careful search of the literature of the last ten years.

The Mode of Infection.

In an excellent thesis on the subject in 1897 Hinglais stated that 60 per cent. of abdominal actinomycosis occurred in the appendico-cæcal region, and most writers since that time have given about the same figure. In regard to the method of infection in these abdominal cases there appear to be two main views, which, however, do not differ very greatly from each other. The first is that some infected foreign body, such, for example, as a grain of corn, lodges in the mucosa of the appendix or cæcum, and so carries the infection into the connective tissue planes, where alone it is pathological. A form of membranous surface infection of the mucous membrane has, however, been described, although its pathological significance appears somewhat doubtful. The second view of the mode of infection is that the actinomyces is a frequent normal inhabitant of the intestinal tract, an assumption which is based on the careful work of Dr. Wright, and the rôle of the foreign body is then thought to be merely that of causing the trauma which provides a portal of entry for the organism into the connective tissue planes. Here it spreads by a process of direct extension, for unlike tubercle and blastomyces, actinomyces does not spread by way of the lymphatics or blood stream, a fact which accounts for the extreme rarity of generalised infection in this condition.

Very varying opinions are held as to whether the cæcum or the appendix is the commonest primary site of infection. Kelly, Cope, and others maintain the latter, while Waring, who carefully reported seven cases, holds the former view. The appendicular theory rests mainly on the many cases where actinomyces has been found in appendices removed in the ordinary way, but there is no evidence to show that in many of these cases it represents anything more than the accidental presence of the organism. Cases undoubtedly do occur in which the appendix is definitely primarily affected by the disease, and in these it is noticeable that the base is the part nearly always attacked, in contradistinction to septic infections.

The Three Types of Infection.

Actinomycosis presents itself in the appendico-cæcal region in three different types. In the first and commonest type of case the patient insidiously develops a painless, gradually enlarging tumour in the right iliac fossa Such a case, if allowed to progress, ultimately forms abscesses and fistulæ, and more rarely even metastatic deposits in other parts of the body, particularly the liver This type of case has a grave prognosis, and is responsible for the sinister reputation the disease has in this respect The second type is more acute and begins with the symptoms of what is apparently an ordinary attack of fairly severe appendicitis This is operated on, and the appendix, gangrenous usually at the base, is removed, the nature of the infection not being generally recognised at the time In such a case the resulting sinus is slow in healing, and often during convalescence a secondary abscess forms and bursts through the wound, the nature of the case only becoming apparent at this period The third type seems to be much less common, and is represented by the case reported in this paper Here an actinomycotic patch formed in the cæcum and perforated, giving rise to a generalised peritonitis for which the patient was operated on

A peculiar feature of all types of abdominal actinomycosis, first pointed out by Lick and well marked in the present case, is the curious "yellow white facial appearance of these patients This colour is very like that so often seen in cases of ectopic gestation, and is quite distinct from the yellow of septic absorption or the dead white of a simple anæmia

Treatment

In regard to the treatment of these cases, the most important thing is early recognition of their nature In many instances this will depend on routine examinations of films and cultures The surgical treatment consists in opening and scraping sinuses, draining abscesses, or excising or invaginating actinomycotic patches Hydrogen peroxide is said to be a particularly valuable application Potassium iodide in large and increasing doses should be administered as soon as the infection is recognised, as much as 100 gr three times a day being necessary in some cases When these large doses are being administered, a careful watch must be kept for symptoms of iodism, and the other salts in the diet should be reduced Wild states that a good method with these large doses is to make a strong solution of the iodide in water and to give each dose in from 6 to 8 ounces of milk Several observers have reported good results from the use of vaccines

Case Report

The following case is unusual on account of the localised nature of the lesion and the onset with generalised peritonitis

L W, female aged 32 was admitted to Guy s Hospital for severe generalised abdominal pain Two years previously she had had a mild attack of pain in the right iliac fossa and since then has had abnormally painful periods The present attack began suddenly the day before admission with severe abdominal pain, worse in the right iliac fossa Bowels have acted normally

On admission, temperature 98 F, pulse 105 The patient had a curious yellow white colour and was very ill Abdomen tender and rigid especially over the appendix region Tongue dry and furred A diagnosis of perforated appendix was made and immediate operation advised and carried out On opening the abdomen a quantity of purulent fluid welled up from the pelvis and did not appear to be in any way shut off The cæcum and appendix were brought into the wound The appendix appeared normal but on the cæcum close to the base of the appendix there was a thickened patch about the size of a shilling with a perforation in the middle On scraping the margins of this patch yellow granules suggesting actinomycosis, were seen and direct films were made from it The appendix was removed, and the patch in the cæcum scraped and then invaginated The peritonitis was treated by the method described by Mr I J Steward several Carrel tubes being passed into the peritoneal cavity and a large exit tube left in the pelvis A continuous drip of normal saline was maintained through the Carrel tubes for three days all the tubes being then removed The patient was put on potassium iodide in doses which were quickly increased up to 50 gr three times a day Both the direct films and further films made from the peritoneal washings showed the presence of actinomyces The wound healed rapidly and the temperature which showed fluctuations up to 102° for the first 12 days speedily settled to normal When seen three months later the abdomen appeared normal the scar was firm and the patient in very good general health the change in her colour being particularly noticeable She is being kept under observation for some time, owing to the long intervals at which actinomycosis sometimes reasserts its presence

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A CASE OF

PARATYPHOID "C" FEVER IN EAST AFRICA

BY R P GARROW, M D ABERD, D P H *

THE extended application of the method of hæmoculture in the diagnosis of P U O during the war has led to important additions to our knowledge of the bacillæmias causing continued fever Recent interesting contributions[1,2,3,4] to the literature of this subject place beyond doubt the existence of a fourth member of the enteric group of bacilli invading the blood stream and producing continued fever of the enteric type in man Although this "new germ of paratyphoid, as Hirschfeld calls it, differs from *Bacillus paratyphosus B* only in its immunity reactions, these differences are sufficiently important to entitle the organism to be named *Bacillus paratyphosus C*

Earlier workers[5,6] on this subject have reported bacillæmias due to organisms of anomalous character causing enteric like fever, but whether these bacilli are identical with *B para* C can only be decided if cultures have been kept for comparison It is possible that this same organism has been isolated many times in different parts of the world by different workers and its significance not appreciated *Bacillus paratyphosus C* has probably not an equal epidemiological importance with the three classical members of the group T, A, and B, as otherwise it would have attracted attention at an earlier date An organism corresponding in morphological, cultural, and serological characters with Hirschfeld s organism was isolated by hæmoculture from a case of continued fever at Port Amelia, Portuguese East Africa on Oct 28th, 1918, in course of routine blood culture for the diagnosis of many puzzling pyrexias met with in that country

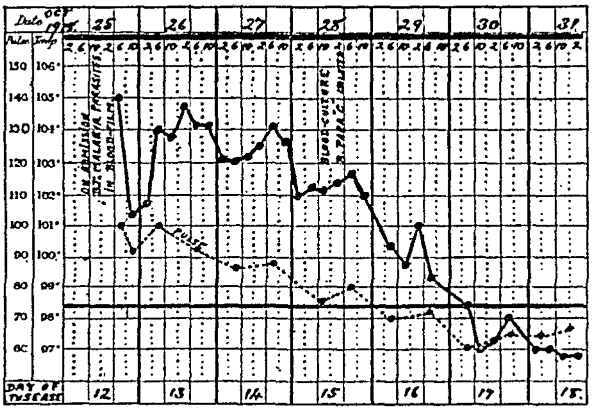
The rule was followed as far as circumstances would permit, of performing blood culture (5 to 10 c cm of blood from a vein sewn in 30 to 40 c cm of sterile ox bile) in every case of fever in which microscopic examination of blood films failed to show parasites, or in which the diagnosis was not otherwise clear The number of these cases was considerable, and they presented a great variety of temperature charts and clinical manifestations During 18 months' military service in East Africa in charge of a bacteriological laboratory I had the opportunity of blood culturing 313 cases of this kind Blood culture was advocated as the method which gives the most reliable evidence of active enteric infection, and its application was deliberately extended to the very large proportion of cases where there was little or no clinical evidence that the patient was suffering from enteric fever In doing this the object was not only to determine the extent to which the enteric group fevers prevailed amongst the troops but more especially to extend and amplify investigations which the writer had made during two years in the Mediterranean war area into the question of so called "atypical enteric fever

The case of paratyphoid C fever here recorded was the only case of this infection found in the course of these investigations It was a sporadic case, and in this respect differs from the cases of paratyphoid C fever reported from Macedonia and Mesopotamia,[7,8] in both of which areas the disease appears to have been more or less prevalent, if not actually epidemic.

History and Clinical Features.

The patient, a South African white, aged 42, who had never been out of Africa, was admitted to the 19th Stationary Hospital at Port Amelia on the twelfth day of his illness with a temperature of 105° F. The routine thick blood film showed benign tertian malaria parasites, and diagnosis was made accordingly. The temperature continued between *102 and 104° in spite of 30 gr. of quinine daily by mouth*, and on the fourteenth day of the illness with a temperature of 104°, no parasites were found on second examination of thick films. The medical officer in charge of the case, Captain C. Kelsall, West African Medical Staff, was not satisfied with the diagnosis of malaria alone, and requested a blood culture, which I did on the fifteenth day of the illness. 10 c.cm. of blood was withdrawn into a sterile syringe from a vein at the bend of the elbow, and discharged into 30 c.cm. of sterile ox-bile. The mixture was incubated at 37° C. for 24 hours and plated on Conradi medium. The result was a pure culture of the organism described below.

The patient displayed the five cardinal signs of active enteric infection of moderate severity: (1) Continued fever of remittent type ending by lysis. (See Chart.*) (2) A low pulse-temperature ratio. (See Chart.) (3) Characteristic toxæmia—dull, heavy, toxin-laden appearance with cheek-flush and heavily coated tongue. (4) A few rose spots on the epigastrium. (5) Palpable splenic enlargement (not of much diagnostic significance in this case on account of a history of many previous attacks of malaria).



The acute illness ended by a rapid lysis, and convalescence was uninterrupted. The attack was not in any way localised to one organ, and there were no lung signs beyond a few moist sounds at both bases.

The Organism Isolated from the Blood.

The organism recovered from the blood of this case on the penultimate day of pyrexia is a short motile Gram-negative cocco-bacillus with the cultural characters of *B. paratyphosus B*, but failing to agglutinate even in low dilutions of any typhoid or paratyphoid serum available for testing. (Lister Institute and Oxford sera, both active when tested with their homologous organisms.) Had the bacillus shown the cultural characters of *B. paratyphosus A*, failure to agglutinate in its homologous serum on first isolation would not have attracted special attention, as such an occurrence has been frequently recorded. But an inagglutinable *B. paratyphosus B* was unknown to me. These characters were confirmed by Major R. Semple, R.A.M.C., in charge of the bacteriological laboratory at Dar-es-Salaam, and by Dr. T. J. Mackie, professor of bacteriology in the University of Cape Town.

On my return to England I gave a culture of this organism to Major F. R. Coppinger, R.A.M.C., who found it to correspond closely with a strain of *B. paratyphosus C* from Macedonia. A subculture was sent for investigation to Dr. J. C. G. Ledingham at the Lister Institute, and a report has been received from Dr. H. Schütze, Lister Institute, stating that

"as a result of agglutination and absorption tests the organism has been found to belong to the group of Salmonella organisms called by Hirschfeld Paratyphoid 'C.' Serologically it more particularly corresponds with the Mesopotamian Paratyphoid 'C' called Baghdad 31."

The organism which on isolation was entirely inagglutinable in para. B serum now shows incomplete agglutination in all dilutions of B serum up to one-fourth titre.

Agglutination Reactions of the Patient.

Table I. gives the results of agglutination observations on the patient's serum. Formalised saline suspensions from agar slopes were incubated with progressive dilutions of serum in tubes in a water-bath at 55° C. for two hours, and read macroscopically, or with the aid of a small lens.

TABLE I.

Day of illness.	T.	A.	B.	C.	Day of illness.	T.	A.	B.	C.
15th ...	20 ...	0 ...	0 ...	—	28th ...	20 ...	0 ...	0 ...	80
19th ...	20 ...	0 ...	0 ...	160	45th ...	20 ...	0 ...	0 ...	40

The patient had been inoculated two years previously with two doses of T.A.B. vaccine prepared in South Africa. It was common to find inoculation agglutinins of very low titre or entirely absent in these cases. It will be noticed that tests carried out with the three classical enterica organisms gave a negative result. Tested against his own organism the result was positive.

Table II. gives the results of a series of tests with the serum of a case of paratyphoid B fever in the London Fever Hospital.

TABLE II.

Day of disease.	T.	A.	B.	C.	Day of disease.	T.	A.	B.	C.
9th ...	10 ...	0 ...	160 ...	0	25th ...	10 ...	0 ...	5120 ...	0
13th ...	10 ...	0 ...	1280 ...	0	31st ...	10 ...	0 ...	2560 ...	0
16th ...	10 ...	0 ...	2560 ...	0	33rd ...	10 ...	0 ...	1280 ...	0

This case of paratyphoid B fever, although it developed a high titre of para. B agglutinins, did not show any agglutinins for para. C.

Remarks.

1. This case illustrates the necessity for clinically checking laboratory results. Manson ("*Manual of Tropical Diseases*") warns the tropical practitioner against the common error of supposing that because a febrile patient has malaria parasites in his blood malaria is the only disease he is suffering from. Malaria frequently co-exists with other acute infections such as enteric fever. Indeed, the subjects of chronic malaria suffering from other acute infections sometimes show a few parasites in the peripheral blood, apparently without these being a factor in the production of pyrexia. In other words, pyrexia accompanied by malarial parasites in the peripheral blood does not necessarily spell acute malarial fever.

2. So far as I am aware, this is the only case of paratyphoid C fever reported from East Africa. Although the organism is more closely allied in its characters with *B. para. B*, it is interesting to note that, in its Eastern distribution, it corresponds more with *B. para. A*.

3. The case also illustrates the importance of hæmoculture as a method of investigation of continued fever. The results of *early* routine hæmoculture are incomparably superior in scientific value to any information that can be obtained by repeated examinations of the serum and excreta.

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BOMBAY Corporation has adopted a scheme for the reorganisation of the health department staff in the branches of medicine, sanitation, and conservancy.

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[*] Although the duration of pyrexia indicated on the accompanying chart is 16 days, the earlier part of the illness, of which there was no record except the patient's statement, may have been malaria only.

Medical Societies.

ROYAL SOCIETY OF MEDICINE

SECTION FOR THE STUDY OF DISEASE IN CHILDREN

EXHIBITION OF CASES AND SPECIMENS

A MEETING of this section of the Royal Society of Medicine was held on May 28th, Mr J P LOCKHART MUMMERY, the President, being in the chair

Dislocation of the Thumb —Oxycephaly

Mr B WHITCHURCH HOWELL showed a case of Dislocation of the Thumb in an infant The acute flexion of the terminal phalanx caused it to resemble congenital contraction, a condition with which it might easily have been confused had no history of the accident been available

Dr THEODORE THOMPSON showed a case of Oxycephaly in a child 1 year old The child showed an extreme degree of this deformity, the eyes being very protuberant and the vertex of the skull very high The occiput was but little developed An especially interesting feature was that the early age of the infant permitted an increased intracranial pressure to be recognisable readily The anterior fontanelle was widely open and bulging and the posterior fontanelle was also open The frontal bones were separate No other deformity was present, and the intelligence was good

Congenital Heart Disease

Mr D H PATERSON showed two specimens of Congenital Heart Disease

CASE 1 was that of a male baby, aged 10 months who had been admitted to hospital acutely ill with general pulmonary catarrh accompanied by high remittent fever Contrary to the rule his dyspnœa had been less in the completely supine position than when he was propped up The pulse was over 160 and often uncountable There was no definite bruit Death occurred after three days Before admission to hospital he had been feverish for a day or two Blueness had never been noticed but there had been previous attacks of breathlessness Post mortem the lungs were congested but there was no evidence of pneumonia The heart weighed 2 ounces 14 drachms Immediately below the aortic cusps there was a hole in the interventricular septum The aortic pulmonary, and mitral valves were all large distorted, and fleshy, but the endothelium was glistening and showed no evidence of inflammation an observation which was corroborated by microscopical examination Both the right and left ventricles were hypertrophied the left more than the right The ductus arteriosus was closed

CASE 2 was that of a male infant aged 8 weeks admitted to hospital for cough and dyspnœa of one day's duration accompanied by moist sounds in the lungs The dyspnœa was urgent and it was found necessary to support the chest and let the head fall well back to enable the child to breathe The respirations were sometimes rhythmical The child was extremely pale No cardiac murmur was heard Death occurred next day Post mortem the lungs were merely congested The heart was transversely placed within the thorax and weighed 2 ounces 6 drachms The right auricle was distended and thin walled, and the left auricle small and rudimentary Communicating between the two was a patent foramen ovale admitting the tip of the little finger In the floor of the left auricle lay a completely stenosed mitral orifice The right auriculo ventricular valve consisted of two cusps and the corresponding orifice led into a large thick walled chamber from which both the aorta and the pulmonary artery proceeded The valves of these vessels were well formed Below the origin of the pulmonary artery was a dilated space, the bulbus cordis, which according to Professor Keith corresponded *developmentally to the third* ventricle of the fish The ductus arteriosus was not patent

A Case for Diagnosis

Dr E A COCKAYNE showed a case for diagnosis, probably one of Congenital Syphilis

The boy aged 9½ years, was undersized and mentally backward His arms and legs were very long in proportion to his trunk the distance from the symphysis pubis to the ground being only 1½ in less than from the symphysis pubis to the vertex The limbs were very slender and the feet and hands very narrow but not longer than normal Radiograms showed marked osteitis of the whole of both femora and very slight osteitis of the tibia and fibula Both humeri were thickened and probably the seat of osteitis There were general muscular weakness lordosis and flat feet The testicles were very small There were no other stigmata of congenital syphilis the Wassermann reaction was negative and the family history was good

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MONTPELLIER SOCIÉTÉ DES SCIENCES MÉDICALES ET BIOLOGIQUES

AT a recent meeting of this society M DE ROUVILLE and M J COHEN reported a case of a large Sessile Anterior Cervical Fibroid developing intra ligamentary and also between the layers of the pelvic mesocolon The woman aged 40 presented as chief symptoms slight menorrhagia with lumbo abdominal pains Difficulty was experienced in opening the abdomen on account of adhesions between the peritoneum and anterior surface of the tumour The uterus contained fibroids and was removed subtotally after enucleation of the tumour from between the two layers of the left broad ligament and the pelvic mesocolon The bladder was accidentally opened during the operation the opening was closed and the abdomen closed without drainage A self retaining catheter was placed in the bladder An excellent result followed The authors remarked especially upon the new connexions contracted by the bladder in the case of anterior cervical fibroids which render it easily wounded at *operation*

At another meeting M SAPIOX and M TZELEPOGLOU described a case of a Double Parovarian Cyst with a long twisted pedicle, the ovary and the tube participating in the torsion The cyst arose on the left side and ascended nearly to the liver on the right The pedicle had undergone three *complete turns Its wall* presented numerous ecchymoses but the fluid contents of the cyst were quite clear Histological examination of the cyst wall showed that the hæmorrhage was limited between two lamellæ of fibrous tissue

M GRYNFELTT contributed a paper on the Histology of a Galactocele The case presented an interesting feature from a *clinical* point of view—its origin was found *to be* due to a bite of a horse Contrary to what is usually found the author did not find any lesion permitting the placing of the tumour amongst the fibro adenomas The wall surrounding the liquid collection was a fibrous membrane of new formation As in all the cases described there are inflammatory *lesions present without one being able to consider them as* chronic abscesses of the breast for the contents are not those of an abscess A study of the contents of the galactocele enabled the speaker to establish the following conclusions (*a*) Numerous granular bodies closely resembling colostrum corpuscles are present in the fluid (*b*) These *granular bodies result from the conversion of* white spherules whose cytoplasm becomes charged with fat globules (*c*) These *granular bodies* act *as* true glandular elements and *not as* scavengers *in* removing mechanically the contents of the collection (*d*) It is this process which explains the cases of spontaneous cure of this affection but *it is not the only factor, for the* wall *of the* galactocele proliferates into the interior of the *milky mass* and tends to obliterate the cavity

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MEDICO PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND —The ordinary quarterly meeting of this association was held on May 20th at the rooms of the Royal Society of Medicine under the presidency of Dr Bedford Pierce when the first Maudsley lecture under the bequest of the late Dr Henry Maudsley, was delivered by Sir James Crichton Browne who in a comprehensive essay dwelt on the modern combination of laboratory and clinical work and the necessity of founding mental hospitals He concluded with references to shell shock and general war neuroses The address was much appreciated by those present, and a vote of thanks to the lecturer proposed by the President and seconded by Sir George Savage was carried with enthusiasm The sequel to the address will be published in two parts the first part appearing in our present issue (p 1248)

SOCIETY OF MEDICAL OFFICERS OF HEALTH FORMATION OF A TUBERCULOSIS GROUP —A meeting was held at 1 Upper Montague street London, W C on May 28th for the purpose of forming a Tuberculosis Group within the society All tuberculosis officers and others interested in the Group were asked to attend Dr J N Kay Menzies presided, and after welcoming those present, spoke in favour of the proposal before the meeting After some discussion, in which Drs Halliday Sutherland G Jessel Hyslop Thomson and H A Ellis took part Dr Thomson moved that the Group be formed and that Dr I G Caley be made secretary Dr A Ashkenny seconded and the resolution was carried A committee, consisting of Drs Ellis Caley, J Sorley, F Stanley Tinker, and M Macdonald was appointed to draw up rules and it is suggested that the first meeting of the Group should be held in July

Reviews and Notices of Books.

1. La Fatigue de l'Appareil Visuel chez les Ouvriers Mineurs.

Par le Dr. M. **Stassen**. Liége: H. Villant-Carmaune. 1914–1919. Pp. 234.

2. Miners' Nystagmus.

By **Frederick L. Hoffman**. Washington: Government Printing Office. 1916.

1. Dr. M. Stassen's book will rank with that of Dr. Lister Llewellyn (published in 1912), among the chief authorities on miners' nystagmus. As to the main cause of the disease, the two are in entire agreement, and, indeed, the evidence is overwhelming that the defective lighting of coal-mines is, in the main responsible. Dr. Stassen puts it in this way: *the overwork imposed on the visual apparatus of the coal-miner, obliged to work continuously in partial darkness, produces a nervous syndrome characterised by incoördination and exaggeration of the visual reflexes.* The clinical symptoms of this syndrome may vary, but they are all the results of accumulated fatigue. Hemeralopia, retinal asthenopia, insufficiency of convergence, blepharospasm, and other symptoms which may precede or accompany nystagmus are all alike due to visual fatigue from work in defective light.

After an historical chapter, in which the literature since 1861 is briefly summarised (and in which, by the way, the names of English authorities are sadly mauled about), and another in which the physiological conditions to which the coal-miner is subjected are described, various statistics and clinical observations are detailed, all tending to the same conclusion as to the causation of the disease. There are, no doubt, other contributory factors in many cases, and it stands to reason that since only a minority of the miners who work under similar conditions are attacked, the nervous constitution of the patient is a matter of primary importance. That the nystagmus of miners, however, has very little in common with the labyrinthine variety is suggested by an interesting chapter, in which it is shown how the oscillations of the eyeball which occur in the two forms of the disease may be analysed by means of the nystagmograph of Buys. In miners' nystagmus an oscillation of the eyeball occurs in which the movements to and fro are symmetrically timed, whereas in the case of labyrinthine nystagmus the movements comprise a series of jerks consisting of a rapid movement in one direction and a slow recovery. It is possible for the two diseases to coincide in one patient, but in that case the result is not a combination of the two types of movement, but the appearance of now one and now the other type of nystagmus, according to the conditions of the moment.

It is when we come to a description of the practical measures to be taken for improving the lighting of the coal-mines that we find the information contained in this book insufficient. Electric lamps had only been introduced in a few Belgian mines shortly before the war, and although these are recommended by the author he points out the disadvantage they have compared with the safety-lamp in failing to warn the miner of the presence of fire-damp; it has even been found necessary in certain dangerous mines to provide the miner with an oil safety-lamp in addition, thus adding both to the weight and the expense. Further, to avoid dazzle the author recommends that the electric lamp should be partially frosted.

2. The American Bureau of Mines has printed this pamphlet with the avowed object of disseminating information. It is a compilation from various sources, chiefly English, but also Belgian and German, and it is disappointing to find that there are practically no American investigations on the subject. There is only one report derived from an American source, compiled in January, 1911, by the Illinois Commission on Occupational Diseases. In this the rarity of miners' nystagmus is remarked. Out of 500 pick-men examined not a single case was found. The report inclines to the older view that the disease is caused by a constrained position of the body with the eyes directed upwards, a view of the disease which the more recent investigators in this country are unanimous in rejecting.

Cunningham's Manual of Practical Anatomy.

Vols. I. (Limbs) and II. (Thorax and Abdomen). Seventh edition, revised by **Arthur Robinson**. London: Henry Frowde and Hodder and Stoughton. 1920. Pp. 451 and 524. 12*s*. 6*d*. per vol.

The addition of extra matter and a considerable number of new illustrations makes it necessary that "small Cunningham" should appear in three volumes in this edition, and these are the first two numbers of the new issue. The work, of course, has long passed the era of criticism, and is firmly established at the head of all dissecting manuals. These volumes have been revised in many ways; the directions for dissecting are more prominent, a good deal of editing of the text has been undertaken, and many new figures of dissections and sections have been introduced, with a large number of radiographs. All concerned with the production have reason to be proud of the two beautiful volumes so far issued in the edition. We notice one or two minor misprints in the second volume: thus, in Fig. 82, the urethra is termed ureter, the round ligament of the liver seems to run a curious course with reference to the inferior mesenteric vein in Fig. 162, and in Fig. 205 the lower label of the levator ani appears to indicate the internal sphincter. The Basle nomenclature is used throughout, with occasional references to the English terminology.

Sanitation for Public Health Nurses.

By **Hibbert Winslow Hill**, M.D., D.P.H., Professor of Public Health, Western University. London and New York: Macmillan Company. 1919. Pp. 209. 7*s*.

"This book was written to give public health nurses a concise view of the fundamentals of modern public health as it is to-day," but after this sentence in the preface the nurses in question appear not to have bulked more largely in the mental audience of the author than others of the public who are interested in preventive medicine. The work is an essay on practical epidemiology, with a popular description of those infectious diseases which are most common in America, with chapters on food, flies, cleanliness, ventilation, and vital statistics. It is modern in its contents and original in some of its methods of teaching.

Many parts of the book will appeal more to that section of the medical profession which is interested in the ætiology and prevention of infectious diseases than to nurses and health visitors, as we call "public health nurses." The latter can hardly be expected to be "up" in the subjects of paratyphoid fever and anaphylaxis, nor in "Duke's disease" which Dr. Hill disposes of by classifying rötheln into "scarlatinoid German measles" and "measly German measles." A much more severe type of scarlet fever is described than that which is now common in this country. The views expressed are, on the whole, sound, and there are several interesting observations noted—e.g., that the aural discharge of measles does not appear to be infectious.

The chapter on cleanliness may be specially commended to those who aim at the chastening of health faddists. Its aim is largely to show that infectious disease cannot be avoided by cleanliness, in the general sense of the word, but only by such scientific and coördinated measures as prevent the inroad of the special forms of foreign matter which convey the materies morbi of these diseases. This chapter may be commended to all nurses, while those nurses and health visitors who have been sufficiently educated to appreciate the terms used will find the whole book worth reading. The chapter on vital statistics contains specimens of propaganda child-welfare leaflets, which should be found useful in schools for mothers. Each chapter concludes with a summary—a practice which might with advantage be more generally adopted.

TAYLOR'S PRINCIPLES AND PRACTICE OF MEDICAL JURISPRUDENCE.

Seventh edition. Edited, revised, and brought up to date by FRED. J. SMITH, M.A., M.D. Oxon., F.R.C.P., F.R.C.S., Physician to, and Lecturer on Medical Jurisprudence at, the London Hospital. London: J. and A. Churchill. 1920. Vol. I., pp. 940; Vol. II., pp. 952. £3 3*s*.

THE nature and scope of this work are too well known to require any introduction to our readers. In his time the late Dr. Alfred Swaine Taylor was undoubtedly the leading English medical jurist and toxicologist, and several editions of his treatise appeared rapidly. The fifth and sixth issues were ably edited by the late Dr. F. J. Smith, as well as the seventh, whose two volumes form an excellent and exhaustive account of medical jurisprudence. They will be found especially useful for reference; the very large number of illustrative cases and legal decisions which they contain render the work valuable both to barristers and medical men in dealing with medico-legal problems. Many changes are to be found in the present edition, and in the preface the editor acknowledges the unstinted assistance given him by Dr. W. Bulloch, to whom are due the references which will be found at the end of nearly every section of the work. These are especially numerous in the section of toxicology, where new information on various poisonous substances has been added and numerous rare cases of tragedy and crime have been recorded. The section on lunacy has been entirely recast and brought up to date. The Mental Deficiency Act has received notice, as have also the resolutions of the Pharmaceutical Society on the Poison Schedule.

During recent years the Workmen's Compensation Act has added greatly to the work of the Law Courts, and it is most advisable that medical practitioners should make themselves acquainted with the subject. The problems are well set out which may present themselves when claims are made under the Act, and many cases and decisions are given which will serve as guides in the consideration of any particular case. The question "What is an accident?" has now assumed complexities and proportions totally unthought of years ago, and the wording of some of the clauses of the Act is confusing. The observations on this subject are well worth perusal. Dr. Smith's large experience as a medical referee to the Home Office gave him opportunities of seeing the practical working of the Act, and the cases recorded well exemplify the difficult and complicated positions which present themselves. The relation of antecedent disease to "accident" is dealt with at length; this matter is intimately connected with medical evidence and often gives rise to differences of opinion. We entirely agree with the dictum that in all fatal cases an autopsy should be held; the medical witnesses may then explain the bearing of these facts on the fatal event and leave to the law the decision as to the adjustment of compensation. The arrangement of the index calls for special approval. The illustrative cases are classified under headings, so that when dealing, say, with a case of gunshot wound similar cases can at once be consulted. This makes for great saving of time and removes risks of error.

We can once more speak in the highest terms of Taylor's Jurisprudence, both as a work of reference and as a book to be studied for the higher examinations.

A MEDICAL HANDBOOK.

For the Use of Practitioners and Students. Fifth edition. By R. S. AITCHISON, M.D., F.R.C.P. Edin., late Medical Officer, Out-patients' Department, Royal Infirmary, Edinburgh. London: Charles Griffin and Co. 1920. Pp. 390. 10*s*. 6*d*.

THIS little handbook, which has now reached a fifth edition, provides an excellent clinical summary of medical disorders. The book is intended to form a vade-mecum which the busy practitioner can read through rapidly. The classification of diseases is entirely clinical, this arrangement having been adopted with a view to increasing the value of the book in the practical diagnosis of disease. The author's personal experience finds more ample expression than is commonly the rule, while the references are not confined to recent advances in medical knowledge, but preserve much that is reminiscent of former wisdom. "General Data Useful for Reference" are collected together towards the end of the book, and the subjects dealt with cover a wide field. Here will be found a classification of skin diseases, rules for the management of infants, incubation periods, notes on certifying the insane, a classification of poisons according to the treatment required, signs of approaching death, &c. Post-mortem examination and prescribing are the subjects of yet other chapters, and an appendix deals with such subjects as test meals and Widal's reaction. Well-established drugs rather than the newer remedies find a place in the sections devoted to treatment, and a useful collection of prescriptions in general use has been appended. This thoroughly useful book is illustrated by upwards of 40 figures.

THE SEXUAL DISABILITIES OF MAN.

Their Treatment and Prevention. Fourth edition. By ARTHUR COOPER, M.R.C.S., L.R.C.P. *London*: H. K. Lewis and Co. 1920. Pp. 266. 7*s*. 6*d*.

THE value of this book, a useful treatise in its earlier form, has been enhanced by the addition of two new chapters, carefully and moderately written, on hygiene and continence. The first of these chapters is summarised in the author's rule that "no two persons of any age or sex should sleep together in the same bed." The application of this rule to husband and wife in particular is justified by a wise and detailed discussion of marital needs. It is to be regretted that in the chapter on continence the importance of early marriage is not definitely insisted on, for this is the practical lesson which shapes itself insistently in our mind after reading Mr. Cooper's argument. In youth continence is both possible and desirable, from the psychological as well as from the physiological point of view; for, as Montaigne puts it: "Il n'y a n'y continence n'y vertu, s'il n'y a de l'effort au contraire." But, as Mr. Cooper frankly says, the sexual appetite is natural, and while it may be advantageously controlled it cannot be permanently repressed without damage to the normal individual. For this reason as well as for many others —the control of venereal disease among them—a State subsidy in aid of early marriage might be a blessing to society.

A postscript is added on the relation of warfare to sexuality. It consists of quotations from various authors. Two conclusions appear. In the first place that the dominant appeal to the instinct of self-preservation relegates the sex instinct to a place of secondary importance under combatant conditions. Secondly, that the unnatural grouping of healthy males in large bodies isolated from the rest of the community tends to sexual perversion. These facts are now fairly well recognised, and scarcely needed further emphasis.

FACIAL NEURALGIA AND ITS TREATMENT.

With Especial Reference to the Surgery of the Fifth Nerve and the Gasserian Ganglion. By J. HUTCHINSON, F.R.C.S., Surgeon to the London Hospital. London: John Bale, Sons, and Danielsson. 1919. 37 figures. Pp. 216. 15*s*. net.

THIS monograph is an enlarged revision of the essay which received the Jacksonian prize at the Royal College of Surgeons of England in 1915. The book opens with an account, well illustrated with drawings from dissections, of the surgical anatomy of the fifth nerve. The causes and different forms of facial neuralgia are then passed in review, and the minor neuralgias are clearly distinguished from the epileptiform variety, the term the author uses to denote tic douloureux. The greater part of the book is devoted to a consideration of the symptoms, course, pathology, and treatment of the epileptiform type. Before advising excision of the Gasserian ganglion the surgeon is warned that he must ascertain that his patient is the subject of true epileptiform neuralgia and of nothing, else, if the result is not to prove disappointing. Above all must he exclude cases simulating tic douloureux in hysterical or neurasthenic subjects. By the modified operation which Mr. Hutchinson advocates—that is, by sparing that part of the ganglion concerned with the first division of the fifth nerve—all fear of subsequent damage to the patient's eye can be avoided. The temporal route of approach is the one recommended, and as the whole of the skin flap is made within the area of the scalp the scar is subsequently concealed by growth of the hair. It is a surprising fact that patients suffering from tic douloureux will endure its tortures for five or ten years rather than seek relief by an operation, which in competent hands, performed by the method set out in this monograph, is mostly free from risk to life or eyesight.

A critical account of the treatment by alcohol injections is given, and a method adopted by the writer of approaching the superior maxillary division of the nerve through the orbit is described. The conclusion arrived at is that sooner or later with treatment by alcohol injections recurrence of the neuralgia occurs. A short account is given of neurectomy of the second and third divisions of the nerve. Resection of the superior maxillary division has an advantage over removal of the Gasserian ganglion in that the motor fibres are not involved, hence the masticatory muscles retain their power and there is an entire absence of deformity of any kind; but as a curative operation neurectomy is inferior and recurrence of pain sometimes compels a resort at a later date to removal of the ganglion. An extensive bibliography brings an excellent monograph to a close.

THE TOPOGRAPHICAL ANATOMY OF THE LIMBS OF THE HORSE.

By O. CHARNOCK BRADLEY, M.D., D.Sc., M.R.C.V.S. Edinburgh: W. Green and Son. 1920. Pp. 172. 21s. net.

THIS is a manual for veterinary students who are dissecting the horse's limbs, and is a clear and carefully written guide for their researches. Perhaps in future editions a little more stress might be laid with advantage on the relations of the structures described, and references in the text to the figures, when appropriate, would be of some value to the learner. These figures are an outstanding feature of the book, and one would like to see full use made of them. The author does not confine himself to bare description, but every now and then goes shortly into morphological points and thereby enhances considerably the interest of his subject. The derivation of anatomical terms is treated in footnotes by Dr. E. B. Jamieson. This is a custom which has fallen into disuse in works on human anatomy, but is one that might be revived with advantage in these days of non-classical education in order that students may learn, in Principal Bradley's words, that "terms are more than mere collections of letters." The author uses the Basle nomenclature, but apparently could not bring himself to the point of using the names which that terminology inflicts on the carpal bones.

A JUNIOR COURSE OF PRACTICAL ZOOLOGY.

Ninth edition. By the late A. MILNES MARSHALL and the late C. HERBERT HURST. Revised by F. W. GAMBLE, D.Sc., F.R.S. London: John Murray. 1920. Pp. 517. 12s.

Milnes Marshall had a wonderful vivacity, which is shown in the practical book still bearing his name. The eighth edition appeared quite recently, and sufficient time has not elapsed since its publication for Professor Gamble to find many changes necessary. A new account of the tapeworm has been added, based upon a description of *Dipylidium caninum*, the tapeworm most commonly found in the dog. There has also been some revision in the nomenclature of the vertebrate kidney. It is a pleasure to notice that instead of increasing the price of the book the publishers have actually been able to reduce it.

PRACTICAL HISTOLOGY.

Third edition. By J. N. LANGLEY, Sc.D., LL.D., F.R.S., Professor of Physiology in the University of Cambridge. Cambridge: W. Heffer and Sons, Ltd. 1920. Pp. 320. 10s. 6d.

AS physiology is concerned with the functions of an organ in its aspect as the sum of the functions of its microscopical constituents, the author thinks the custom in British universities for histology to form part of the course of instruction in physiology is indubitably the best, at least so far as the teaching of elementary students is concerned. The present work was already so good, the outcome of extensive experience in the Cambridge School, that the reader would hardly expect many changes. Still, a number of changes have been made, including recent improvements in methods and alterations in nomenclature. The author is of opinion that whilst some knowledge of method is necessary, it is more important for an elementary student to be able to understand what is shown by the specimens than to be able to make them. There is a fair amount of small type giving notes for advanced students. The directions are clear, precise, and definite, and deal partly with the art of making the preparations, partly with descriptions of the objects to be recognised and identified in each section. As to section-cutting, the only instrument figured is the rocking microtome of the Cambridge School. As in previous editions, there are no illustrations of the sections in the text, which is descriptive only, the student being thereby encouraged to make a drawing of what he sees. The book is an admirable compendium, compressed into 36 lessons, of what a medical student ought to know of histology, and if he makes good use of the "demonstrations" his knowledge will be greatly enlarged and extended.

JOURNALS.

The Journal of Industrial Welfare. Price 6d. monthly. Published by the Industrial Welfare Society, Sanctuary House, Tothill-street, S.W.—Industry, by grouping together larger or smaller numbers of the community in the common interest of production, provides social machinery which may be used in a variety of ways. In our own columns we have from time to time dwelt upon the way in which industrial organisation is of value for developing the science of industrial hygiene, and also on the importance to this science of social knowledge. There are two sides to the work, a medical side and a social side, complementary and necessary the one to the other. Among contemporary publications *The Journal of Industrial Hygiene* may lay claim to represent the medical side, and we note its editors do not neglect the social aspect. We have been watching with interest the appearance of another periodical, the *Journal of Industrial Welfare*, which should claim to represent the social side; it is well printed and well illustrated. But we must confess to a feeling of disappointment with its contents; accounts of sports, of the performances of theatrical troupes, pictures of canteens and of gymnasiums, a little safety-first and hints at first-aid, made useful propaganda a few years ago. To-day industry wants something more definite, and so does the medical profession; the supporters of this industrial journal are for the most part large employers of labour; and might be expected to issue information based upon scientific data rather than sketchy allusions to welfare schemes. Masters and men are to-day hard-headed folk; they like to have facts plainly set forth. What do welfare and health schemes cost? What benefits result to those concerned? When a well-intentioned employer starts a scheme the workers ask, "Where is the snag?" If the men propose it the employers ask, "Where do we come in?" We hope that this new journal, by anticipating such obvious questions, will yet see its way to taking up the position it should. We all need real information by industrial economists, setting forth the economic value of welfare in reducing labour turnover, in lessening lost time, in settling personal grievances, in increasing efficiency, and in promoting good fellowship. These things may happen, but it is for those who claim their truth to state the evidence, and to show as clearly as it can be shown that industrial welfare is mutually beneficial, that here neither capital nor labour can benefit at the expense of the other, and that neither can benefit without the other also benefiting.

THE late Mr. H. G. Turner, of Staplegrove, Taunton, has bequeathed £1000 to the Taunton and Somerset Hospital.

THE LANCET.

LONDON: SATURDAY, JUNE 5, 1920.

The Outlook in Medicine and Dentistry.

IN his Presidential Address at the opening of the summer session of the General Council of Medical Education and Registration, Sir DONALD MACALISTER made the customary survey of the changes that had taken place since the last session and indicated the problems arising for present consideration. There will be but little penal business to be dealt with, and though important educational matters will be discussed the President saw no reason to anticipate a long session. In chronicling the transference to the Ministry of Health of the duties hitherto performed by the Secretary of State with regard to the Anatomy Acts, Sir DONALD MACALISTER expressed the hope that the new arrangement would lead to "much-needed improvements in the provision made for the practical teaching of anatomy and surgery." Most of the 3420 new students placed on the Register in 1919 will find their way to the dissecting-room this autumn, and their extraordinary number —more than double that of 1914, and exceeding by 1000 the previous record annual entry—makes the provision of adequate material a most urgent problem. Students cannot acquire a satisfactory knowledge of anatomy in the proportion of 20 or 30 to one subject. The relative ease—depending mainly on the persuasiveness of the resident medical officers of the various institutions—with which pathological human organs can be obtained for purposes of investigation and demonstration must cause envy among those whose essential teaching material consists of normal skeletal, muscular, and nervous tissues in situ. Not the most skilful special pleading convinces the general public—in whom the demands of the anatomists still arouse horror, even though biological knowledge is becoming more general—that the practice of dissection is likely to lead directly to the relief of human suffering. It becomes, therefore, the business of an enlightened department of the State to see that the needs of the anatomical school are met in a sympathetic spirit.

The position as regards qualified recruits to the profession is not so unsatisfactory as might have been feared, since the Medical Register in 1919 was enriched by the names of 450 practitioners on the Colonial and Foreign lists. The proportion of women to men is still on the increase, and Sir DONALD MACALISTER had a word of warning for those who are too optimistic about the professional chances of recently qualified women in the immediate future. However, there still appears to be a need for students of both sexes in the sister profession—hitherto something of a step-sister in popularity—of dentistry. The addition of only 128 dentists, as against 1322 doctors, to the Register in 1919 seems disproportionately small, especially since the dentist is acquiring more and more importance as a valuable ally in the cause of preventive medicine. It is true that the ratio, roughly 2 to 1, of the entry of medical students in the two years 1919 and 1914 is almost exactly reflected in the Dental Students Register, but the extension of conservative dentistry to the masses is leading to a relative increase in the demand for dentists and following the promised Bills dealing with dental registration and the general improvement of dental services, the numbers of doctors and dentists should tend to approximate. Even if they devoted their whole time to school work the existing dentists could not cope with the needs of the 5,750,000 school children while neglecting the rest of the population. And unfortunately evidence seems to be accumulating that the British need for good dentistry, preventive and curative, has been allowed by popular ignorance and slackness to become a national reproach.

Intending students of medicine and dentistry, and those interested in their careers, would do well to study the figures given by the President of the General Medical Council. He calls attention to the overcrowding in the medical schools and suggests that the authorities concerned would welcome a reduction in the entry until the capacity of the profession to absorb so many new recruits is established. The considered words of Sir DONALD MACALISTER should carry weight, for no one who has followed his presidential addresses to the Council can fail to have been impressed by the accuracy of his forecasts and the care which he has shown in guiding the deliberations of the body whose duty it is to maintain our profession at a high standard to meet the public need.

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A Quantitative Test in Pulmonary Tuberculosis.

THE value of the investigations carried out by Professor G. DREYER and Dr. L. S. T. BURRELL, whose paper we publish in this issue, is greater than a casual perusal might suggest. Not only do they describe a quantitative test of the severity and extent of pulmonary tuberculosis and of its reaction to treatment, but they also set up an anthropometric standard by which, it may be hoped, the potentially tuberculous, and not merely the tuberculous, can be judged. Most of their investigations concern definitely tuberculous or healthy persons. To distinguish between these two classes is easy enough without the aid of elaborate tests. But there is a large intermediate class consisting of the ante-tuberculous, whose lowered vitality is the expression of heredity and of that ill-defined condition labelled diathesis, and the tuberculous, whose disease is still clinically latent. To what extent can this anthropometric standard help us at once to pick out the candidate for consumption ten years or more hence? The plan, originated by the Framingham Community Health and Tuberculosis Demonstration in the U.S.A., of making wholesale health surveys, promises to be adopted in many other parts of the world, and the time may not be far off when respectable citizens will enjoy the benefits of analyses and examinations which have hitherto been inflicted almost exclusively on criminals. When that time comes, what will be the tests by which the prospective consumptive will be singled out? v. PIRQUET'S and the other tuberculin tests leave much to be desired; they have served a useful purpose in referring the problem of tuberculosis back to infection in early childhood, but they are of little diagnostic and prognostic help in the period—often measured by decades—between infection and the outbreak of tuberculosis. Is the anthropometric standard sufficiently free from sources of error to distinguish not only between classes A, B, and C, but also between class A, and what we would call class A (2)? Professor DREYER and Dr. BURRELL do not at present claim to have evolved a test of critical and decisive value in ante-tuberculous cases, but in establishing the importance of their test in relation to well-defined disease they are building a solid foundation on which more ambitious structures may be reared.

A line of research which might yield instructive data would be a comparison of the vital capacity constants in the first- and the later-born. Can the comparatively great susceptibility of the first-born to pulmonary tuberculosis, as proved by KARL PEARSON and SÖREN HANSEN, be correlated with a vital capacity below normal? KJERRULF has lately shown that in school children there is no essential difference in the chest measurements of the first- and the later-born; but he has not applied the tests described by Professor DREYER and Dr. BURRELL. It would also be of interest to compare the vital capacity with the blood pressure and the oxygen metabolism in various stages of pulmonary tuberculosis. MARIE KROGH'S recent researches into the oxygen metabolism of the body at rest in various diseases have provided numerical data of great value, and the extension of her methods of research to cases of pulmonary tuberculosis might well yield results which, in conjunction with vital capacity measurements, should add appreciably to our knowledge of pulmonary tuberculosis.

The Banner of Research.

THE growth of public recognition of the benefits derived from research, and the decreased power of the antivivisector to belittle them, are largely due to the propaganda of the Research Defence Society. Since its inception in 1908 this society has striven to educate the ignorant, appease the fanatic, and convince the reasonable man. In its quarterly reports it not only makes plain the latest attempts (sometimes well concealed) to obstruct research, but calls attention to new work and current literature. In the last report a quotation is given from an address delivered by Sir WALTER FLETCHER on March 9th to 40 Members of Parliament, and the address itself has more recently been published by the society in pamphlet form. Sir WALTER FLETCHER claimed that the application of medical science had been one of the fundamental essentials of our victory in the great war. He was right. As examples of the actual economy in pensionable morbidity effected by research he quoted the regulations against bathing in infected waters in Egypt, the surgical application of the pathology of gas gangrene, and the tests to determine the prognosis of trench nephritis. Finally, he spoke of the necessity of enabling men of the first ability to adopt research as a career by securing to them a living wage. "They do not ask for wealth, but they want reasonable freedom from care." One common fallacy mentioned in the address may be emphasised. The idea that a man can spend his novitiate in clinical practice and, having earned distinction and a competence, can then usefully turn to the investigation of the problems he has encountered, is unsound. But there is a more hopeful avenue open. Too often in the past a graduate who had qualified for a series of research scholarships found himself at 35 without an assured income or status, whereas his less brilliant contemporary had risen through conscientious routine work to a position on the scientific teaching staff of his medical school. The tendency in recent years to select for University chairs men with a good record of research, irrespective of their previous teaching experience, must be taken as an indication of brighter possibilities for the research scholar. Definite evidence that experience and skill as a teacher is as desirable an attribute in a candidate for a high teaching post as indication of capacity for research, is another question, and a personal one in each instance. The teacher whose horizon is bounded by his annual course of lectures may become pompous and dogmatic with the years; on the other hand, we all have experience of the distinguished scientist who cannot inspire or even control his class. Perchance the policy of the Medical Research Council in distributing research grants to the junior men at the medical schools will help to develop the ideal type of combined investigator and pedagogue.

Insects and Disease.

A CONGRESS is being held this week in London of our leading economical entomologists, and the programme reveals, what has long been familiar to the medical profession, that a comprehension of the life-history of insects supplies civilisation to-day with an enormous amount of information in respect to agriculture and the production of foodstuffs, while furnishing indications also of how some of our principal epidemics are spread, and how they may be avoided. It is only of recent years that there has been any close attention paid to the rôle of insects in the transmission of disease, though students of medical literature know well that in many directions the exact knowledge of to-day was the subject of forecast by the epidemiologists at the beginning of last century, who refused to acquiesce in the theory which attributed plagues and pestilences of all sorts to "miasma." But technical research had not arrived at a point when they could justify their incredulity by substituting a true ætiology, and they remained prophets of, and not participators in, the new truths. The discoveries as to the transmission by insects of protozoal parasites is one of the glories of last century's medicine, and the establishment of the fact that bacterial disease could be conveyed in a similar manner by insects has proved of equal importance. These things were recognised by the Colonial Office when the Imperial Bureau of Entomology was founded, and the activity displayed by this bureau in the identification of insects, and in the support of expeditions to the actual sites of insect-spread disease, has been of the greatest practical value to medical research. But we need not for a medical audience expatiate upon the supreme importance in modern pathology of the study of the life-history of insects.

Annotations.

"Ne quid nimis."

INTERNATIONAL HONOUR TO SIR CLIFFORD ALLBUTT.

THE Association of American Physicians is for the first time electing to its body honorary members who live outside the United States, and Sir Clifford Allbutt is the first physician from another country to be elected in this way. It is true that Sir William Osler was a member of the Association while he was holding his professorial post at Oxford, but although he was in a sense an honorary member he was also one of the founders. Following Sir Clifford Allbutt's name the names of Professors Roux, of Paris, Heger, of Brussels, and Marchiafava, of Rome, were presented. The whole of the British medical profession will endorse the honour thus paid to Sir Clifford Allbutt's eminent services in the cause of scientific medicine. It is certain that to be brought thus, and once again, into relation with Osler will have for him real if pathetic pleasure.

NUTRITIONAL NEEDS AND THE PATHOGENESIS OF DEFICIENCY DISEASE.

BEFORE the war it was generally held that Voit's standard of 3000 calories, including 118 g. of protein, constituted the optimum food intake for the 24 hours. Most nations of the world lived below this level during the years 1917–18, some of them much below, and Central and Eastern Europe cannot approach this standard at the present time. It might be thought that the experience thus obtained would have been sufficient to confirm or disprove Voit's deductions, but this is to ignore the significance of a rather warm discussion which has been going on between Rubner and Hindhede in the German medical press.

Hindhede has, of course, long stood with Chittenden for the non-necessity of a high protein intake, and along with certain enthusiastic disciples had the courage himself; to subsist for many months on a diet of bread and margarine, maintaining, it is alleged, full working efficiency. The most recent support to this thesis comes from the Hygienic Institute in Leipzig (*M.m.W.*, April 16th), where Professor Kruse and Dr. Hintze, on the results of a long series of exact experiments, inclined to the Chittenden view and put the necessary protein intake at three-quarters only of the Voit standard. It is, they say, a matter of fundamental importance for the future of the German people to live within the compass of its domestic food production; and they agree in effect with Bayliss's maxim to take care of the calories and the protein will take care of itself. But in the same number of the Munich journal Dr. Otto Kestner reviews Benedict's latest study in the Carnegie Institute, in which any reduction on the Voit standard is held to put a limit on the physical and mental capacity of the strong and healthy man. Kestner recalls that it is only within the last two generations that the world has become sufficiently rich to obtain for each individual the food-supply necessary to the full development of healthy faculties, and he regards the agitation of Hindhede, Berg, and others, as nothing less than a public danger. Something similar has occurred in Belgium, where the nominal allotment of food during the war was 2800 calories or so; but of this total Dr. J. Demoor and Dr. A. Slosse contend (*Acad. Roy. de Méd. de Belgique*, April 25th) that only 1400–1500 calories actually reached the consumer. These authors sharply controvert Starling's assumption that hyponutrition was rare in war-time Belgium, asserting rather that tuberculosis and debility played great havoc with the population, while the average Belgian male lost weight to the extent of 10 kilos. Three recent numbers of the principal Austrian medical paper have been largely occupied by a verbatim report of the address on Austria's food problem given by Professor A. Durig before the Vienna Medical Society. Of this address our Vienna correspondent gave an able summary in THE LANCET of May 15th (p. 1084). Durig concludes that Voit's standard must be maintained, in the face of almost blank despair as to how it can be done. In his concluding paragraph he points to the example of a small and isolated country without seaboard which has solved with success its own nutritional problem. What Switzerland has done and can do must be Austria's diligent aim in the coming months and years.

To keep up Voit's standard is at present a question of world-production and world-distribution, with which medicine is only indirectly concerned. But evidence is accumulating rapidly in regard to alleviatory measures, especially in Vienna, where Dr. Harriette Chick and Dr. Elsie Dalyell, representing the Committee on Accessory Food Factors, are carrying on important investigations with the whole-hearted assistance of the Austrian medical profession. A chapter dealing with this work appears in the report of the Lister Institute for 1920, just issued. Rickets, which has of late been developing in an alarming manner even in breast-fed infants in Vienna, is being staved off by allotting to nursing mothers a daily ration of butter, 50 g., and raw swede juice, 30 g. Osteomalacia, which became common last year in both sexes and at all ages and decimated especially the convents, has been shown to be probably due to deficiency of the fat-soluble accessory substance. Scurvy is yielding to extra antiscorbutics in the form of swede juice, orange juice, and neutralised lemon juice. These are only palliatives, but palliatives which are saving many lives and helping to tide over by medical means an emergency which can only be dealt with in its entirety by enlightened statesmanship.

In this connexion it is interesting to refer to the valuable series of researches into the pathogenesis of deficiency disease, continued by Lieutenant-Colonel R. McCarrison, at the Pasteur Institute of Southern India, Coonoor, further contributions on the same subject being reported in the *Indian Journal of Medical Research* (Vol. VII., No. 2). In THE LANCET of July 12th, 1919, and Feb. 14th, 1920, we commented generally on Colonel McCarrison's previous researches.

The reports now published, five in number, deal respectively with the histopathology of deficiency diseases, the influence of a scorbutic diet on the bladder, the effects of autoclaved rice dietaries on the gastro-intestinal tract of monkeys, the general effects of deficient dietaries on monkeys, and the occurrence of recently developed cancer of the stomach in a monkey fed on food deficient in vitamines. With regard to the results of his experiments on the general effects of deficient dietaries on monkeys, Colonel McCarrison reaches the following conclusions—namely, that dietaries which are deficient in vitamines, and in protein, and at the same time excessively rich in starch, or in fat, or in both, are potent sources of disease, and especially of gastro-intestinal disease. An excess of fat, in association with deficiency of water-soluble B vitamine and protein, and superabundance of starch, is peculiarly harmful to the organism. He found also that certain dietetic deficiencies greatly favoured the invasion of the blood and tissues by bacteria: especially was this the case when deficiency of vitamines and protein was associated with an excessive intake of starch. As life cannot be maintained in monkeys (*Macacus sinicus*) for much longer than a hundred days on a dietary almost wholly devoid of water-soluble B vitamine, it would appear that complete absence of this vitamine from the food of human beings is of less practical importance from the point of view of disease production than is its subminimal supply. Complete deprivation of water-soluble B vitamine, especially in the presence of imperfect balance in other essential requisites of the food, will lead to rapid dissolution and death; subminimal supply of this vitamine will lead, in like circumstances, to slow dissolution and disease.

Finally, Colonel McCarrison makes the important suggestion, and one which must be of special interest to medical men in general practice—namely, that the findings recorded by him may afford some explanation of the genesis of that great mass of ill-defined gastro-intestinal disorders and vague ill-health which forms so high a proportion of human ailments at the present day.

MINERS' NYSTAGMUS.

IN the *British Journal of Ophthalmology* for April there is a full report of the important discussion organised by the Illuminating Engineering Society upon the illumination of mines, with particular reference to miners' nystagmus. The chairman justly remarked that Dr. T. Lister Llewellyn, who opened the discussion, had produced an enormous amount of evidence in favour of the view that the essential cause of miners' nystagmus is deficient illumination. On the present occasion the chief interest of Dr. Llewellyn's paper depended on the practical measures which he recommended to improve illumination. Incredible as it may seem, the source of light which gives the highest candle-power at the coal-face is the tallow candle. By carefully spreading out the wick two candle-powers may be obtained. In mines where there is a danger of fire-damp open lights cannot be used. The modern oil safety-lamp rarely gives more than one-half candle-power, and the modern electric lamp in use gives about one candle-power. The introduction of electric lamps has already effected a certain improvement in the conditions in many mines, but its light is still insufficient, and any possible improvement is necessarily limited by the weight of the battery. By bringing the light as near as possible to the surface of the coal-face which is being worked upon something can be done. A form of cap-lamp was demonstrated at the meeting which, according to Dr. Llewellyn, met the requirements satisfactorily. The battery is carried in the miner's belt and connected with the lamp by a flexible wire, the weight being 2¾ lb. Mr. Bishop Harman suggested that inventors should turn their attention to the production of a vapour-lamp capable of giving an efficient and harmless light. Other speakers dwelt on other aspects of the problem—the quality and colour of the light, the possible toxic effect of gaseous emanations from the coal-face, and the undoubted fact that nystagmus is a disease of the nerve centres, rather than of the eyes, and that it has some relation to neurasthenia. A notable feature of the discussion was that no one was found to defend the view that the cramped position of the miner at his work is mainly responsible for nystagmus; this is in contradiction to the teaching of Mr. F. L. Hoffman's pamphlet, issued by the American Bureau of Mines, but the American report has no basis of personal experience. Whatever factors other than deficiency of illumination may enter into the causation of nystagmus, it is amply proved that the most important is the amount of light reflected from the surface of the coal at which the miner is working, and therefore the time is ripe for preventive action. There is, it appears, a Government inquiry now sitting on the subject, and there is also being arranged a joint inquiry of ophthalmic surgeons and lighting engineers. There ought soon to be some practical result of so much deliberation.

ADVERTISEMENTS IN THE MEDICAL PRESS.

IN a recent number of THE LANCET[1] a report appeared of a meeting of the Worcestershire County Council at which considerable discussion took place with regard to certain salaries offered by the Council in connexion with their medical service scheme, and with regard to the attitude of the *British Medical Journal* and *The Lancet* towards advertisements of the posts in question forwarded to them by the Council. Both papers had refused to accept advertisements which offered a less salary than £500 per annum for such posts, and the Council, although warned by a medical member that on a former occasion of a similar character advertisements in the daily press had produced no replies, decided eventually to repeat the experiment. In particular, Mr. Willis Bund, the chairman, and Colonel Wheeler, the vice-chairman, protested, the former against allowing the medical press "to dictate" to the Council as to what salaries should be given, and the latter against the Council "sitting down" under the treatment thus accorded to it. Neither of these two gentlemen seems to have appreciated the position of these two papers, which exist not merely to supply the medical profession with information upon matters of interest to it, including opportunities for competing for public appointments, but also in order to advance and maintain the interests of the profession by every honourable means. The possibility of a learned profession considering that a salary below a certain figure should not be offered to or accepted by its members should at least have been understood by Mr. Willis Bund, and that the organs of that profession should give expression to its views should not have appeared to him unnatural. He is a barrister, a member of a profession in which the strictest rules exist governing many questions of remuneration. We need only refer to the prescribed proportion to be borne by the junior's fee to that of his leader when counsel appear in court, or to the special conditions under which a barrister is briefed on a circuit of which he is not a member, in order to remind any lawyer of the existence of these rules. They refer, it is true, to strictly professional work for which barristers are "briefed," and we are not aware of any interference with the acceptance of appointments. In other words, individuals can be sweated if they choose, and their profession makes no effort on their behalf. At the same time, we conceive that if the Government were to decide, for example, that the remuneration of county court judges or masters of the High Court was to be reduced for future appointments by 50 per cent. the bodies representing the two professions would have something to say by way of protest. So, no doubt, would the legal press, although its relations to the profession for which it caters hardly coincide with our own, and might not impose on it the duty of refusing to advertise underpaid posts for barristers and solicitors. There are, however, intrinsic differences between the two professions which affect the position which they occupy with regard to their members. We do not desire to advise lawyers as to what it is consistent with their dignity to accept by way of remuneration as members of a learned profession or as to what is necessary for their maintenance. Outside any such questions as these, there is, with regard to medical appointments, a more important point to be considered. The medical profession is responsible for the public health, and it realises that it is not in the public interest that posts should be held by men whose experience and training have not qualified them to do so with credit to themselves and with advantage to the public.

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[1] THE LANCET, May 1st, 1920, p. 979.

In the particular case under consideration the chairman actually admitted that he had had a letter from the Ministry of Health stating that tuberculosis officers should have special qualifications and experience, and expressing a doubt as to whether the salary offered would be sufficient to secure them. Mr. Willis Bund "objected to this sort of pressure being put upon local authorities." We can only express our satisfaction at the attitude taken up in the public interest by the public authority. For ourselves, if refusal to insert the advertisements of the Worcestershire County Council should appear to that body to be arbitrary or dictatorial, we would assure its members that it is neither. It is due to our full appreciation of the requirements of the Council and of those of the public with the care of whose health it has been entrusted.

IODINE DISINFECTION.

THE efficiency of disinfection of the skin with iodine has recently been the subject of painstaking investigations by Dr. Johan Seedorf,[1] a countryman of Professor Rovsing, whose criticism of this popular method of disinfection has done much to prevent its acquiring the unimpeachable security of stereotyped orthodoxy. Rovsing's indictment, it may be remembered, was supported by cases in which tetanus or gas phlegmon developed in spite of preoperative treatment of the skin with iodine. Dr. Seedorf's investigations were made both in vivo and in vitro. With regard to the latter, he found that iodine (0·1 per cent.) in an aqueous solution of potassium iodide kills staphylococci in one minute, but tetanus spores only after two hours. This disinfectant action of iodine increases with the strength of the solution only up to a certain point; its maximum efficiency is exhibited by a 1 per cent. solution. In confirmation of earlier investigations, it was found that, though alcohols readily kill the ordinary bacteria, their action on the spore-forming group is very slight, whereas that of iodine is much more effective. The effect of iodine on the skin was studied on rats' tails as well as on human skin. It was noted that the disinfectant action of iodine on a rat's tail was not checked by previous washing with soap and water, and this was so whether the skin was still moist or not after the washing. The same observation was made on the human skin, and this point is the more interesting as some advocates of iodine disinfection have insisted on dryness of the skin being an essential preliminary to the application of iodine. Dr. Seedorf made a series of interesting comparative investigations into the effect of iodine sterilisation as practised in three different surgical departments. All used a 5 per cent. solution of tincture of iodine, but the ritual differed in the various departments according to the inclination of each surgeon and the urgency of the operations. At the beginning of each operation a piece of skin, which had been treated with iodine, was excised and submitted to a bacteriological examination. Although the skin was found to be sterile only in 42 per cent., healing by first intention was effected in 90 per cent. of the cases in which drainage was not maintained. In 3 per cent. abscesses formed in the operation wound, and stitch abscesses formed in 7 per cent. In all these post-operative septic cases the excised portions of skin yielded micro-organisms. But in spite of these shortcomings Dr. Seedorf recommends iodine disinfection, especially when it is preceded by mechanical cleansing, and when three paintings of iodine are given at intervals of five to ten minutes during the last half hour before operation. He employs a 1 per cent. solution of iodine dissolved in 96 per cent. of ethyl-alcohol. If time permits there should be an interval of about 12 hours between the soap-and-water cleansing and the application of the iodine. In emergencies soap-and-water washing should be omitted in order that repeated applications of iodine may be made.

THE CARE OF EPILEPTICS IN AMERICA.

THE twenty-sixth annual report of the New York State (Craig) Colony for Epileptics contains, as in former years, a good deal of pertinent material by the medical superintendent, Dr. W. T. Shanahan, about the care of epileptics. Dr. Shanahan lays stress on the importance of individualisation in treatment, pointing out that the whole of the environment, including diet, drugs, and especially occupation and education, must be considered along individual, rather than along general, lines. Not the least important factor in this environmental adjustment is the appointment and retention upon the staff of the best type of men and women; and Dr. Shanahan pleads for money to provide suitable diversion and recreation for the employees who have to live, day in and day out, among the patients. Such expenditure, he rightly argues, would be an indirect but effective means of treating the patients themselves. Little appears in this report about the use of bromides. Those who have followed the work at the Craig Colony will remember that between 1904 and 1915 the average daily dose of bromide was reduced from 20·5 to 0·6 gr. per patient, and that during the same period the incidence of fits was, if anything, rather diminished. Dr. Shanahan continues to report favourably upon this very restricted use of bromide, and remarks that cases of status epilepticus and serial seizures have been much less frequent than in former years, when bromides were used more freely. The omission in the report of any reference to psychogenic factors in epilepsy or to psycho-therapeutics in its treatment is surprising, as Dr. Pierce Clark, visiting neurologist to the colony, has long been recognised as a pioneer worker in this aspect of the ætiology and treatment of the disease. Epilepsy is essentially a disease arising in childhood; and it is during childhood that general environmental adjustment is of paramount importance; for it is then that we have the best chance of arresting fits, and of combating retarded or abnormal mental development. It is a pleasure, therefore, to note that a supervisor of education is to be appointed, for the first time, at the Craig Colony. One only regrets that the colony school is so small and financially limited.

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[1] Acta Chirurgica Scandinavica, 1920, vol. lii., Fasc. v.

A few statistics will best indicate the present scope of the work. The number of patients at the colony is 1350, and they are under the charge of ten resident and eight visiting medical officers—an allowance which strikes us in this country as very generous. Of 5000 patients admitted since the opening of the colony, only 10 per cent. are reported as being mentally normal or approaching that level, while 10 per cent. showed signs of paralysis originating at birth or in infancy. Some 3700 patients have left the colony, of whom more than half were removed by death, 4 per cent. to insane asylums, and only 2·4 per cent. were reported as recovered, the standard of recovery being freedom from seizures for two years or longer. The net cost per head has risen slightly, from $268 in 1914 to $290 in 1919. One of the most valuable features in the Craig Colony reports is to be found in the post-mortem records. There are 103 of these in the present volume, making a total series of 1039 autopsies on epilepsy. The classification of the findings might not be generally acceptable. For instance, of the 103 brains examined this year, we are astonished to learn that no less than 89 per cent. were found to show "definite gross lesions." This surprising figure is arrived at by including among definite gross lesions such conditions as congestion, anæmia, or œdema of the brain, icteric colouring of the brain, asymmetry of the calvarium, and even bruises of the scalp.

TRANSIENT PERICARDIAL FRICTION IN CORONARY THROMBOSIS.

IN the *Albany Medical Annals* for April Professor L. W. Gorham has called attention to a sign of coronary thrombosis which has been almost unrecognised — transient pericardial friction. He reports six cases, in three of which the diagnosis was verified by necropsy. The following is an example:—

A lawyer, aged 57, whose health had been excellent, was seized with severe pain on Dec. 24th, 1917, while walking up a rather steep hill several hours after luncheon. When he sat down the pain ceased. Next day after the evening meal the pain recurred when walking and ceased on resting. In the evening it returned, with much belching of gas. About an hour after going to bed he was seized with agonising pain under the sternum. When seen at 3 A.M. his chief difficulty was severe substernal pain and an effort to vomit or belch gas. The pain did not radiate to the arm. His colour was grey, with slight cyanosis. The pulse was 100, full, bounding, and of high tension. Morphine hypodermically and nitroglycerine failed to relieve the pain. After four hours he felt easier. A complete examination was not made until next morning. There were ashy cyanosis, slight œdema of the bases of the lungs, increase of cardiac dullness to the right, rather distant regular heart sounds, and a delicate to-and-fro friction rub. The blood pressure was 120 systolic, 70 diastolic. For five days there was fever up to 101° F., with a pulse of 110 to 120. The friction came and went. Under rest and digitalis he gradually improved and the pulse and temperature became normal on the ninth day and the rub disappeared after two weeks. Suddenly, without warning, he died in bed on the thirty-seventh day after the onset. The necropsy showed the right heart and left ventricle considerably dilated. The anterior wall of the left ventricle in the area supplied by the anterior branch of the left coronary artery was thinned and softened and in the middle was a yellowish area of necrosis. Over the area of softening there was slight roughening of the epicardium and irregular areas of ecchymosis. The right coronary was narrowed by calcification. The left coronary was also calcareous and occluded by a friable reddish thrombus, but the distal parts of the coronary arteries appeared normal. The aortic valves were thickened. The papillary muscles had a yellow to greyish mottled appearance.

The six cases showed the following points of similarity.

1. Sudden attack of agonising pain, usually substernal, frequently radiating to the left arm and of longer duration than in an ordinary attack of angina, often lasting for several hours. Following this pain or soreness might persist for days. In some cases the pain was referred to the epigastrium, suggesting an abdominal catastrophe. The patient looked shocked, with ashy-grey moist skin and rapidly compressible pulse. (Such cases have been operated on). 2. Fever coming on usually in 24 hours and lasting four or five days. 3. A pericardial rub coming on within the first few days, transitory, often recurrent. 4. Signs of cardiac decompensation—tachycardia, arrhythmia, feeble heart sounds, falling blood-pressure, increase of cardiac dullness to the right, disappearance of a systolic murmur present before, signs of œdema of the lungs, albuminuria, and, in late stages, general œdema. Morphine and nitroglycerine failed to relieve the pain. There may or may not have been attacks of angina pectoris preceding the seizure. Coronary thrombosis may occur where recent examination has failed to show evidence of cardiac or vascular disease. There may or may not be an exciting cause, such as over-exertion, over-eating, or excitement. All the cases except one were fatal, but one patient lived for three months after the first attack. One patient recovered and could work actively five years after the attack.

On turning to the literature allusions may be found to this clinical picture, but the text-books do not mention pericardial friction in coronary thrombosis. In 1884 Leyden described such a case but failed to interpret it correctly. In 1892 Kernig mentioned pericarditis following an attack of angina. In 1910 Sternberg described the syndrome in the *Wiener Medicinische Wochenschrift* under the designation "Pericarditis Epistenocardica." Professor Gorham's observations of six cases within a few years, taken with the fact that fibrinous pericarditis is not an uncommon post-mortem finding in coronary thrombosis, suggest that the condition is more common than might be supposed and that it has frequently been overlooked.

SYPHILIS OF THE PROSTATE.

Dr. Loyd Thompson,[1] of Hot Springs, Arkansas, whose article on Syphilis of the Bladder recently received notice in THE LANCET,[2] has written an equally interesting paper on Syphilis of the Prostate, in which he reviews the literature and reports a personal case. Only 24 cases purporting to be syphilis of the prostate have been recorded, and of these only 12 can be accepted as authentic. It can therefore be concluded that the condition is either very rare or that it is seldom recognised. In 7 of the 12 authentic cases in which the time after infection is stated it varied from three months to 15 years. The age of the patients ranged from 18 to 62, the average being 40. The most frequent clinical symptom of syphilis of the prostate is pain which may be slight or violent, and in some cases is independent of micturition, but in most cases is aggravated by the act Pollakiuria is the next most frequent symptom, but in none of the cases was it very marked A slight urethral discharge was noted in three cases, and in several a discharge was produced by prostatic massage Less frequent symptoms are hæmaturia, a feeling of a foreign body in the rectum, painful defæcation, painful coitus, and more or less residual urine As a rule the urine is somewhat cloudy, and contains pus, muco pus, epithelial cells, and sometimes red blood corpuscles There is nothing pathognomonic either in the symptoms or rectal findings, so that the diagnosis must be made by exclusion, the history, the presence or absence of other symptoms of syphilis, including the Wassermann reaction, and the results of specific treatment *The prognosis is good, as in all the* authentic cases improvement, and in most complete recovery, occurred under specific treatment

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[1] American Journal of Syphilis, April, 1920.

[2] THE LANCET, April 10th, p. 828.

FEDERATION OF MEDICAL AND ALLIED SOCIETIES

A MEETING of the Executive Council of the Federation was held on Thursday, May 27th, at 11, Chandos street, Cavendish square, when the report of the General Purposes Committee in regard to a submission from the Medico Psychological Association of Great Britain and Ireland was considered, and it was resolved that a letter be sent to the Lord Chancellor, the Minister of Health, and the medical Members of the House of Commons urging the need of immediate legislation for the efficient treatment of mental disorders in their early stages It was also reported that, in view of the request of certain nursing and allied organisations, a conference had been held, when the bodies chiefly concerned had agreed to the following resolution —

> That there should be on the Consultative Council of Medical and Allied Services of the Ministry of Health a qualified nurse who should also be a qualified midwife and who at the same time should represent the masseuses and sanitary inspectors '

The Executive Council resolved to support this resolution by forwarding a letter on the matter to the Minister of Health and the medical Members of Parliament

A discussion of the Interim Report of the Consultative Council of Medical and Allied Services of the Health Ministry followed, the value of which was enhanced by the good attendance present and by the fact that Lord Dawson, who is a member of the Council, answered very fully many questions which arose during the discussion It was considered that a public and independent inquiry into the working of the National Insurance Medical Benefit and a census of the hospital beds in the country were necessary preliminaries to many of the reforms advocated The following organisations which had applied for corporate membership of the federation, were elected —London and Counties Medical Protection Society, National Union of Trained Nurses, School Dentists' Society, Women Sanitary Inspectors and Health Visitors Association The names of 42 medical men and women were submitted as applicants for associate membership and were declared duly elected The Medical Committee of the House of Commons has nominated Captain W E Elliot, M P, its secretary, as a watching representative on the Executive Council of the Federation, and Captain Elliot was elected a member of the Council

THE TREATMENT OF LEPROSY

AN account was given in THE LANCET of May 1st of the general recommendations of the Calcutta Leprosy Conference since which the papers on the treatment of the disease read before the conference have been published in India (*Indian Medical Gazette*, April), which furnish important confirmation regarding the value of Sir Leonard Rogers's method of injecting soluble preparations of the unsaturated fatty acids of chaulmoogra and other oils, together with some further progress of his researches

During the past year reports have been received of the trial, organised by the Mission to Lepers, of both sodium gynocardate intravenously and sodium morrhuate subcutaneously and intravenously from 18 leper asylums, an analysis of which was read by Dr E Muir, who had previously recorded favourable results from this line of treatment Although many of the cases were advanced ones and the treatment was not long enough (in some cases not exceeding two months) to afford the best results, yet in 300 cases improvement was noted in 72 per cent and much improvement in 32 per cent, including several cases in which the lesions entirely disappeared The results were practically the same with both drugs, although most of the observers thought the gynocardate was more effective in anæsthetic cases, but more troublesome to carry out on account of its irritant effect on the veins Dr Muir concludes "The result of this widely carried out experiment can leave but little doubt that a distinct advance has been made in the treatment of leprosy An interesting report by Dr Ernest Neve of his trial of the drugs in Cashmir is also recorded, as well as a suggestive paper by Dr Muir on the after treatment of the disease A paper by Dr M Cathew, of Siam reporting the further progress of his trial of sodium gynocardate A was also read, and is of interest owing to the longer duration of his trial, which he summarised as follows In 4 the lesions have completely disappeared for from 6 to 18 months, in 8 there is very marked improvement, although in 2 of them there has been some retrogression, in 1 general improvement, in 1 slight improvement, and in none no improvement Four other cases were lost sight of, 2 of whom had very greatly improved

Sir Leonard Rogers also summarises his results up to date in 71 cases as showing 1 not improved 12 slightly improved, 32 greatly improved, and 26 lesions disappeared, and mentions 4 of his earlier cases who have now remained free from all visible signs of the disease for over two and a half years Six of his later series have remained free for over a year but he records 5 relapses due to early cessation of the treatment, and states that it is too early to speak of permanent cures in this series He goes on to point out that the success of sodium morrhuate in leprosy establishes the important principle that other unsaturated fatty acids than the peculiar series found in chaulmoogra oil are of value in the treatment of leprosy, which has led him to make further preparations from oils with a high iodine value indicating a large proportion of these substances One of these made on this theory from soya bean oil has proved to be practically unirritating on injection into patients, while a short trial indicates that it is considerably more active in leprosy than previous preparations thus holding out hope of still further advances in the near future, when an experienced whole time investigator will take up the research in the Calcutta School of Tropical Medicine

A paper in the same issue of the *Indian Medical Gazette* is worth attention It is on the use of sodium morrhuate in advanced pulmonary tuberculosis The subjects, who had tubercle bacilli in the sputum, were 28 sepoys at Quetta, at the date of the records 8 (in addition to 4 early cases) had been discharged cured by a medical board and 6 more were fit for discharge (and were passed by the board a little later), 4 were improving, 4 were worse, 3 were in a stationary condition, and 1 died before more than two or three injections could be given. Even allowing for the favourable dry climate of Quetta these results, obtained in five months, are very encouraging.

THE TRAGEDY OF LOUTH.

THE Ministry of Health has been prompt to initiate measures for the prevention of any epidemic evils that might follow on the complete destruction of a large area of the town of Louth. The structural repair of the damaged drainage system is to be immediately taken in hand, and strict injunctions have been issued that all drinking-water should be boiled. The work of salvage is proceeding under the eyes of medical officers sent down from the Ministry, and every precaution is being taken that the tragedy of the flood should not be followed by the tragedy of disease.

THE LEAGUE OF RED CROSS SOCIETIES: THE MEDICAL ADVISORY BOARD.

A PROGRAMME of the General Medical Department of the League of Red Cross Societies has been drawn up by Dr. Richard P. Strong, general medical director, in anticipation of the first annual conference of the Medical Advisory Board of the League, which will meet in Geneva on July 5th. Eight nations will be represented at this conference by distinguished members of the medical profession, whose duty it will be to consider this medical programme, to make recommendations upon it, and to advise concerning the medical work to be undertaken by, or in the name of, the League. Belgium, Brazil, Denmark, and Japan each contribute one of the Board's 15 members; Italy has 2 representatives; and France, Great Britain, and the United States each send 3 delegates.

Dr. J. Bordet, director of the Pasteur Institute at Brussels, is the Belgian member of the Board. Brazil is sending Dr. Carlos Chagas, director of the Oswald Cruz Institute at Rio de Janeiro. From Denmark will come Professor T. H. Madsen, of the State Serum Institute at Copenhagen, while the Japanese representative is Professor Kinnosuke Miura, of the Imperial University of Tokio. Professor Dr. Giuseppe Bastianelli, physician and pathologist to the Polyclinic Hospital at Rome, and Professor Aldo Castellani, professor of tropical diseases at the London School of Tropical Medicine, constitute the Italian delegation. The French members of the Board are Professor Emile Roux, director of the Pasteur Institute at Paris and chairman of the Cannes Conference, at which the League of Red Cross Societies was organised; Professor Albert Calmette, subdirector of the Paris Pasteur Institute; and Dr. Léon Bernard, professor of hygiene at the University of Paris. Great Britain is represented by Colonel S. Lyle Cummins, professor of pathology at the R.A.M.C. College, London, and during the war adviser in pathology to the British armies in France; Sir Walter Fletcher, secretary of the Medical Research Committee; and Sir George Newman, chief medical officer of the Ministry of Health. Dr. William H. Welch, director of the School of Hygiene and Public Health of the Johns Hopkins University; Dr. Hermann M. Biggs, New York State Commissioner of Health; and Dr. Simon Flexner, director of the Rockefeller Institute for Medical Research, will be the American members of the Board.

The Medical Advisory Board of the League of Red Cross Societies will at its first meeting elect its officers and adopt rules to govern its proceedings. The decisions of the Board, when approved by the chief officers of the League, will outline the medical policy to be pursued. While the regular meetings of the Medical Advisory Board will be held annually, emergency meetings may be called by the League's director-general or Board of Governors. In the intervals between meetings the members of the Advisory Board are kept informed by correspondence of the health work being undertaken or contemplated by the League. They, in turn, keep the general medical department of the League informed of the progress of health work in their respective countries, and call the attention of the League to any fields which they believe it may profitably enter.

IN Dr. George E. Morrison, Political Adviser to the Government of China, the medical profession has lost one of its most distinguished representatives, although his work of world-wide importance lay in other fields. The story of his adventures and wanderings, no less than of his statesmanlike activities, has been told during the week in the press of the country; his death while still in middle age and full of plans for the future is a deplorable event.

A DINNER will be held on Tuesday next, June 8th, at the Connaught Rooms, Great Queen-street, to celebrate the services of the Royal Army Medical Corps, and the civilians attached to it, during the great war. Sir Alfred Keogh will be the chief guest, and the Secretary of State for War, Mr. Winston Churchill, Field-Marshal Lord French, Field-Marshal Lord Haig, and many distinguished generals will be present. Lord Derby, Lord Midleton, Lord Edmund Talbot, General Seely, Mr. H. J. Tennant, and Colonel Sir Edward Ward are acting as a committee, and all communications should be addressed to the last named at 10, Grosvenor-street, S.W.

THE retirement of Sir John Bland-Sutton from the active staff of the Middlesex Hospital, where he was until to-day senior surgeon, is a thing to make us regret the remorseless passage of time. As a student and later as a member of the staff, Sir John Bland-Sutton has been associated with the Middlesex Hospital for 42 years, and the inception and endowment of the Bland-Sutton Institute of Pathology, a remarkable piece of individual generosity, is only one of the many advantages to the hospital which can be traced to his efforts. His release from active hospital work will enable Sir John Bland-Sutton to give still more time, as President of the Association of British Surgeons, to the scientific side of medicine, the development of which he has so much at heart.

A MEMORANDUM on clinical units in medical schools has been issued during the week by the University Grants Committee, 12, Old Queen-street, Westminster, stating the case for the units, and detailing the acts of legislation and the official or other reports which have led to their establishment. The memorandum sets out the advantages and also the drawbacks which may attend the latest development in medical education, and enumerates the essentials of the clinical system. These may be summarised as the provision of satisfactory training for the students in suitable and properly correlated hospitals and schools under appropriate and competent persons. It is postulated that the professor or director should devote the greater part of his time to teaching, treatment, and research, should have control of hospital beds and an out-patient department, ample laboratory accommodation and scientific equipment, and an adequate whole-time and part-time staff.

THE GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

THE opening of the summer session of the General Medical Council took place on June 1st, under the presidency of Sir DONALD MACALISTER. It was announced that Mr. H. J. Waring would be absent for the session in the United States, and that Dr. David Hepburn found the pressure of examinational work too great to allow of his attendance.

President's Address.

In his opening address he recorded the retirement of Dr. David N. Knox, Sir Bertram Windle, and Sir Charles Tomes, treasurer to the Council since 1904, and paid a tribute to their past services. He then welcomed as new members: Dr. James A. Adams, representative of the Royal Faculty of Physicians and Surgeons of Glasgow; Dr. R. A. Bolam and Mr. E. B. Turner, Direct Representatives of the practitioners of England and Wales; and Mr. Norman G. Bennett, appointed by the Crown, in place of Sir Charles Tomes. Sir Donald MacAlister congratulated the following members of the Council on whom honours had been conferred—K.B.E., Sir James Hodsdon; C.B.E., Colonel Waring, Dr. Caton, and Dr. Langley Browne; O.B.E., Mr. Cockington. He continued:—

"Under the Ministries of Health Acts, Consultative Councils, for the purpose of advising the respective Ministers in regard to medical and allied public services, have been constituted in the three kingdoms, and are already at work. To all of them members of this Council have been appointed, and it will thereby be kept in touch with their activities. A number of draft and other Orders in Council under the Acts have been transmitted for its consideration to the Executive Committee, but so far none of these have dealt with questions other than administrative and formal. On May 17th an Order was issued giving effect to a desire of the Executive Committee, by which the duties of the Secretary of State in regard to the Anatomy Acts are in England and Wales transferred to the Minister of Health. It is to be hoped that the new arrangement will lead to much needed improvements in the provision made for the practical teaching of anatomy and surgery.

Acting on your instructions, I was enabled by the courtesy of the Lord President to call the attention of the English Minister of Health to an apparent omission from the Nurses Registration Bill introduced by him. No provision was made, as in the Midwives Acts, for communicating the rules framed by the General Nursing Council to the Executive Committee before approval by the Minister. Dr. Addison considered the point, but decided that such a provision was in this case unnecessary, as the rules in question, unlike those of the Central Midwives Board, do not purport to 'regulate the practice' of nurses, but deal mainly with details of administration. Moreover, such rules have, unlike those for midwives, to be laid before Parliament prior to approval. The Minister accordingly did not favour any amendment of the Bill in the sense suggested, and the Lord President concurred in his view. The point will, however, have to be kept in mind, should it hereafter be proposed to make rules, under statutory authority, for regulating the practice of nurses in surgical and medical cases as that of midwives is regulated in obstetrical cases. Sir Jenner Verrall has been appointed a member of the General Nursing Council for England, and will, no doubt, keep us informed on the subject."

The President then referred to the reintroduction by Sir Henry Craik of Lord Morley's Bill of 1912 for the extension of the time allowed to prepare for the election of Direct Representatives to the Council, and for providing that in general such elections shall be held simultaneously. If the measure passed into law, he said, considerable economies on the part of the branch councils and of candidates would be effected, and the convenience of the electors would be better served.

The legislation for the amendment of the Dentists Act, he said, had not yet been initiated in Parliament, though it was stated officially that draft Bills were soon to be introduced. It appeared that one Bill would be required to deal with dental registration, and that other measures would be necessary to give effect to such proposals for the improvement of dental service as were set forth in the Report of the Departmental Committee on Dental Practice—these had already been considered by the Council. It would be necessary to instruct either the Executive Committee, or a special committee appointed for the purpose, to watch the progress of legislation during the summer, and to take such steps as might be required to ensure that effect was given to the conclusions of the Council. Sir Donald MacAlister commented with approval on the Dangerous Drugs Bill, which imposed restrictions on the import, export, manufacture, and sale of opium, cocaine, &c., with the object of preventing dangerous abuse of these drugs. He pointed out that it gave power to the Government to make regulations for the issue by medical practitioners of prescriptions containing any such drug, and for the dispensing of such prescriptions. During the war similar regulations were in operation, and the question of their continuance had now assumed an international aspect. The profession, which best knew the nature and extent of the evil, would probably be the first to welcome wisely-devised measures for checking it, even if these embodied some fresh restrictions upon professional freedom. He continued as follows:—

The Registers.

"The new Medical Register confirms the forecast on which I ventured in November.[1] On the Home List only 872 practitioners were registered in 1919, but no fewer than 450 were registered in the Colonial and Foreign Lists. The result is that the total number (1322) of new names is higher than in any year since 1915. The proportion of women practitioners increases, and is likely to increase rapidly during the next year or two. I learn, however, on good authority that their services are in less demand than during the war, and that newly-qualified women are finding difficulty in obtaining suitable opportunities for professional work. Supply and demand will, no doubt, adjust themselves in time, but in view of the large entry of women students it is proper to warn those concerned that, in the meantime, individual disappointments may be encountered. The women students who are now well advanced in their curriculum may not all at once find openings for practice after attaining to qualification. The profession of medicine is, in regard to women, affected like other occupations, by the return to civil life of large numbers of ex-Service men as students and practitioners. To these men the country owes special consideration, and they ought to receive it. But inevitably they tend to displace a proportion of the women who so capably carried on the work of the profession during their absence abroad.

The Medical Students Register indicates that the depletion of our professional ranks by the wastage of the war will in a few years be much more than made good by the addition of newly-qualified men. No fewer than 3420 medical students (men and women) were registered in 1919, as compared with 1600 in 1914. The number of registrations, indeed, exceed by over 1000 the highest previously recorded—namely, in 1891—when for special reasons the number rose to 2405. The sudden increase cannot at once be met by a corresponding expansion of our educational resources, and the strain thrown upon the medical schools of the country is therefore for the time excessive. There is reason to think that most of the schools would welcome an ebb in the tide of applicants for admission, until it is seen that the profession can absorb the large numbers aspiring to enter it, and until more adequate provision is made for their effective instruction and training. In the departments of anatomy and operative surgery, of midwifery, and of clinical medicine, the existing provision is no longer fully adequate to the new demands.

The Dentists Register is stationary. The figures for the last three years are respectively 130 (1917), 131 (1918), 128 (1919). But there is an assured prospect of an advance by the year 1922, for the number of dental students entered on the Register in 1919 has risen to 612, as compared with 294 in 1914. In order more clearly to mark the sources of supply, an improvement has been made in the Medical and Dentists Registers, whereby the numbers of practitioners added respectively to the Home, Colonial and Foreign Lists are set forth in separate tables.

The cost of paper and of printing has so risen that impressions of the Registers can no longer be produced at the present authorised price. It may therefore be necessary to approach the Commissioners of the Treasury with a request that the price may be fixed at a sum sufficient at least to cover the actual cost of production.

The cycle of inspections of qualifying examinations, ordered by the Council, has been begun. Some of the reports have been already received, and will be considered by the proper committees during this session. For the Public Health Examinations we have been fortunate to secure the services as our inspector, of Dr. Robert Bruce Low, C.B., lately assistant medical officer of the English Local Government Board. For the Final Examinations for medical degrees and diplomas our inspectors are Dr. Howard H. Tooth, C.B., C.M.G., in medicine; Sir Hector C. Cameron, C.B.E., in surgery; and Sir William J. Smyly in midwifery. Members of the Council have also been good enough to act as visitors at one or more examinations, and as provided in the Standing Orders they will present their separate reports to the committees concerned."

Education and Examination Committees.

Sir Donald MacAlister said that the Education Committee was considering the question of instruction in medical ethics and the relations of practitioners to the State, the teaching of practical midwifery, and the place assigned to the preventive aspects of medicine in the curriculum of professional study. The time was ripe, he urged, for some "reconstruction" in respect of the extent and content of the several stages and departments of the medical course. The Council was accumulating from various sources ample materials both for a survey of existing conditions and for a reconsideration of its own standing resolutions on professional education and examination. The Examination Committee would submit analyses of the annual tables furnished by the licensing bodies, and would also report on the practice of the licensing bodies in respect of teaching and examination in ophthalmology, with reference to the Council's resolution of last year. The Council's finances were in a satisfactory condition, since the treasurers had been able to report for 1919 a surplus of income over expenditure of £874.

Sir NORMAN MOORE proposed a cordial vote of thanks to the President for his address, with the request that he allow it to be printed and incorporated in the minutes of proceedings. In doing so, he alluded to the conferment on the President of his recent honour, Chevalier of the Order of the Crown of Italy, and expressed his own and his colleagues' warm congratulations.

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[1] THE LANCET, 1919, ii., 991.

Dr. NORMAN WALKER seconded and the vote was carried by acclamation.

Committees.

The following were appointed to constitute the Executive Committee: Sir Gilbert Barling, Sir Norman Moore, Mr. Waring, Dr. Macdonald, Dr. Norman Walker, Sir James Hodsdon, Sir Arthur Chance, Sir John Moore.

The selection for the Penal Cases Committee was: Sir Francis Champneys, Dr. Macdonald, Sir Norman Walker, and Sir Arthur Chance.

The constitution of the remaining committees was as follows:—

Business Committee.—Dr. Norman Walker (Chairman), the President, Sir Francis Champneys, Dr. Macdonald, Dr. Magennis.

Pharmacopœia Committee.—The President (Chairman), Sir Norman Moore, Dr. Hopkins, Dr. Russell Wells, Dr. Caton, Dr. Norman Walker, Sir John Moore, Dr. Kidd, Dr. Matthew Hay.

Finance Committee.—Sir Norman Moore (Chairman), the President, Sir James Hodsdon, the Junior Treasurer, Sir Arthur Chance.

Dental Committee.—The President (Chairman), Mr. Waring, Sir James Hodsdon, Sir Arthur Chance, Mr. Bennett (in place of Sir Charles Tomes).

Dental Education and Examination Committee.—Sir James Hodsdon (acting Chairman), the President, Mr. Waring, Sir Arthur Chance, Dr. Coey Bigger, Mr. Bennett (vice Sir Charles Tomes).

Students' Registration Committee.—Sir Norman Moore (Chairman), the President, Dr. Mackay, Dr. Littlejohn, Sir Gilbert Barling, Mr. Sinclair, Dr. Kidd.

The Council then went into committee.

WEDNESDAY, JUNE 2ND.

The Council proceeded to the consideration of penal cases.

TUBERCULOSIS SOCIETY:

A REPRESENTATIVE CONGRESS.

WE briefly announced last week (p. 1197) that under the auspices of this society a two-day Congress was held in Leeds on May 13th and 14th, with additional meetings at Bradford and Harrogate on the 12th and 15th. The Congress was representative of tuberculosis workers from all parts of the country, including Ireland. Dr. H. DE CARLE WOODCOCK (the President) occupied the chair.

Opening Addresses.

On May 13th the proceedings in Leeds were opened with an address by the LORD MAYOR (Mr. T. B. DUNCAN), in which he suggested that social conditions must be improved. Children must be taught to cultivate clean minds and thoughts, and then we might look forward to an A 1 nation, with strong bodies, vigorous minds, and healthy constitutions.—Sir MICHAEL SADLER welcomed the delegates on behalf of the University. We must, he said, develop a fine tradition in industry, family duty and purity, and nobler state of society. These were all factors in the cause we were out to win. —In his presidential address the PRESIDENT advocated more autocratic power for the medical officer of health, the abolition of slums, and the building of new houses which the tubercle bacillus would avoid. Research was needed to show us where we stood.—Professor BENJAMIN MOORE (Medical Research Committee) moved a resolution, seconded by Dr. A. TRIMBLE (Belfast):—

> "That in the opinion of this Congress a conference should take place between those actually engaged in tuberculosis work and those engaged in research work, to arrange the lines on which future investigation should be conducted and the manner in which records should be kept and collated and their results circulated."

After the opening session the delegates were entertained to luncheon by the PRESIDENT.

Sectional meetings began in the afternoon.

Section A.—Tuberculosis and the Workers.

This was the subject of the first section at which Mr. S. SHUTER (H.M. Chief Inspector of Factories) took the chair.—Dr. TRIMBLE thought that tuberculosis was not caused so much by the actual occupation as the terms and conditions under which, and the wages for which, the people worked. Infection took place chiefly in childhood and education was essential to prevent development of the disease in later life. If only the tired worker could obtain the necessary rest 90 per cent. would become automatically cured.—Professor MOORE said that the cost of redeeming those affected with tuberculosis was a sound expenditure. If we could prevent 50,000 deaths a year we would be able to pay the whole war debt in a generation.—Special interest attached to the information given of the evils of the glass-bottle industry by Mr. FISHER (secretary of the Glass-bottle Makers' Society). The blow-pipes used by the men, which are in use 22 out of the 24 hours and pass from worker to worker without sterilisation, being a very probable method by which the disease is transmitted.—Mr. LANCASTER (Typographical Association) and Mr. COHEN (National Union of General Workers) also spoke of the inadequate wages in many trades where the minimum was also the maximum wage. The evils of underground workshops were also mentioned.

Section B.—Tuberculosis and Child Life.

The chair was taken by Mrs. ROBERT HUDSON, who very strongly advocated the attack upon the disease at the very earliest age, and the correction of ailments such as rickets, which were indirectly associated with tuberculosis.—Dr. A. E. L. WEAR (chief medical officer to the Leeds Education Committee) said that in the routine examination of 23,000 children in Leeds 128 cases of pulmonary, 126 glandular, and 66 cases of bone tuberculosis were found. Of 483 crippled children 90 suffered from some form of tuberculosis. Taking all the institutions in the country for tuberculous children together there was less than one place for every 1000 children in attendance. He strongly advocated open-air schools.—Dr. C. W. VINING (Leeds Infirmary) said that he was appalled at the extraordinary amount of chronic ill-health in the second year of life. The chronic catarrhs of early childhood were, he thought, due to defective feeding in the first three years of life. Poverty was not the cause unless it were poverty of commonsense and knowledge. The main defects were want of breast feeding during the first year, and a diet lacking in fat and protein, with excess of carbohydrates during the second year of life.

Section C.—Recent Advances in Treatment.

Dr. MARCUS PATERSON (Collindale Hospital, Hendon) spoke of the value of graduated work, and also deprecated the practice of over-fattening patients and then sending them home to face the rigors of everyday life in an unfit condition. Graduated labour and controlled auto-inoculation ought to be taught in every medical school.—Sir HENRY GAUVAIN (Treloar's Hospital, Alton) spoke of the recent advances in the realm of surgical tuberculosis, and showed lantern slides of the methods adopted.

Section D.—Farm Colony.

Dr. S. JACOB (travelling secretary of the National Association for the Prevention of Tuberculosis) took the chair. He described the limited scope of the sanatorium and the necessity of providing for the convalescent period, where a patient could in an open-air life complete the cure.—Mr. A. G. RUSTON (Lecturer in Farm Economics, Leeds University) spoke of the farming methods which would be most likely to prove successful in a farm colony.—Mr. G. W. ALLEN (chairman of the Association for Tuberculous Ex-service Men in Leeds) put in a strong plea for the establishment of village settlements as distinct from farm colonies, which could only be applicable to a small proportion of the men.

Section E.—The Education and Training of Patients Suffering from Non-Pulmonary Tuberculosis.

In the evening Sir HENRY GAUVAIN gave a lecture on the work at Alton, illustrated by lantern and cinema slides. The Lord Mayor later gave a reception in the City Art Gallery to the delegates.

Friday, May 14th, was devoted entirely to sectional meetings

Section F —Tuberculosis and the Housing Problem

Dr **HALLIDAY SUTHERLAND** (Marylebone Dispensary) said that everything should be done to discourage the growth of cities and to encourage the growth of semi agricultural and semi industrial communities in the country, as in France The widespread ownership of property was the very greatest safeguard against Bolshevism and anarchy —Dr **OSCAR HOLDEN** (M O H , Dewsbury) spoke against consumptives living in back to back houses and urged the segregation of advanced cases He suggested that definite areas should be set apart and patients with their families be put in suitable houses, with workshops provided so that they could earn, at any rate, part of their livelihood —Councillor **NOON** (chairman of the Leeds Housing Committee) stated that there are 73,000 back to back houses in Leeds He advocated new houses being earmarked for tuberculous families —Dr **NOEL BARDSWELL** (London Insurance Committee) deprecated the idea of compulsory segregation, which was impossible for a democratic country

Section G —Sanatorium Dietary and Milk Tuberculosis

The chair was taken by Dr J **JOHNSTON JERVIS** (M O H , Leeds), who spoke of the absolute necessity of a clean milk supply, and this should be the first consideration of the Government —Dr **JANE WALKER** (East Anglian Sanatorium) read a paper on Food Values in Relation to the Treatment in Sanatorium She approved of three main meals a day both for adults and children —Dr **JAMES WATT** (Downs Sanatorium, Sutton) said that surprisingly little special diet was needed in the treatment of tuberculosis —Mr **RUSTON** and Dr **WOODCOCK** contributed a joint paper on the Calorific Values of Foods They advocated a quart of milk a day for each patient as being the best method of obtaining fat

Section H —Surgical Tuberculosis

This turned almost entirely into a discussion of tuberculosis and milk

Mr S W **DAW** (Lecturer in Surgery, Leeds University) said that more than half the cattle in this country gave tuberculous milk because the best milkers were most liable to have the disease —Dr H A **ELLIS** (Middlesbrough) contended that resistance was much more important than infection —Dr F J **HENRY** (Middlesbrough) regretted that experts should be so divided in opinion Research was badly needed, with full collaboration and dissemination of information —Mr **DAW** in reply, upheld the view that prevention was more essential than cure, that milk should be boiled and the vitamines lost replaced by alternative foods

Section I —Tuberculosis and the War

Sir **MONTAGUE BARLOW** (Parliamentary Secretary to the Ministry of Labour) said that approximately 40 000 ex Service men were affected with tuberculosis The Government proposed to erect village settlements for these men, and he was confident that the money would be forthcoming with which to build them —Dr **RAW** said that if the scheme of village settlements could be carried out it would do more than anything else to cure the disease —Dr **BARDSWELL** mentioned that of 430 men discharged with tuberculosis in London 60 per cent were already dead Before settlements could be provided the rest would have shared the same fate

Section J — Care Work

Dr **JANE WALKER** spoke from the point of view of the sanatorium officer She had found great value in the patients club which encouraged them to keep in touch with her after leaving sanatorium She was in favour of employing ex patients on the staffs of institutions —Dr **ELLIS** advocated clubs where tuberculous persons might resort in their leisure hours The whole question of tubercle was the question of after care —Dr F **STANLEY TINKLER** (Surrey) was strongly in favour of local workshops for the employment of ex sanatorium patients This coupled with an energetic educational campaign, would do far more than the scheme of residential industrial colonies which could but touch the fringe of those needing assistance —Dr C L **WILLIAMS** (Dewsbury) thought that attention should be specially concentrated on the pre tuberculous and the early case —A resolution was passed advocating the initiation of a well organised and adequate scheme of after care in connexion with the medical treatment of the disease, either by the Government or the local authorities

Section K —Artificial Pneumothorax

Dr **MORRISTON DAVIES** (Vale of Clwyd Sanatorium) gave an address on the Methods of Collapse Therapy, which was illustrated by lantern slides of X ray photographs —Dr S **VERE PEARSON** (Mundesley Sanatorium) described the types of cases treated and results obtained —Dr Z P **FERNANDEZ** (Armley Hospital, Leeds) also spoke

Section L —Tuberculosis and Training of the G P

Dr J **KAY JAMIESON** (Professor of Anatomy, Leeds University) took the chair and urged the study of tuberculosis on wide lines —Dr J **LE FLEMING BURROW** (Tutor in Medicine, Leeds University) referred to the political cry for nationalisation He deprecated this because it discouraged initiative and research Whole time service was not beneficial, and a multiplication of special whole time officers was not advisable He urged that more should be spent on research and less on treatment, in this way the object would be obtained more easily Many delegates in the evening visited Killingbeck Sanatorium and Armley Hospital, when a demonstration in artificial pneumothorax was given

Section M

An address was given, illustrated by kinematograph films, by Dr **HALLIDAY SUTHERLAND**, on Consumption its Cause Cure, and Prevention

INTERNATIONAL ASSOCIATION OF MEDICAL MUSEUMS

REPORT OF MEETING OF THE AMERICAN AND CANADIAN SECTION

(FROM A CORRESPONDENT)

THIS society held its thirteenth annual meeting at Cornell University Medical College New York Professor O Klotz of Pittsburg, in the chair when Dr Roy Miner, Associate Curator of the American Museum of Natural History, New York, was present as delegate from the *American Association of Museums*

The programme was opened by addresses delivered by the Chairman and Dr Maude E Abbott on The Pathological Collections and the Activities on Behalf of the Medical Museum and of this Association of the late Sir William Osler which were received with deep appreciation

A report on *The Central Bureau for North America for the Preservation of Microscopic Results of Medical Research* which was established by the Association some years ago but has not yet been operated for lack of funds was presented by Leo Loeb of St Louis Mo urging the *importance of this Bureau and* the necessity for its immediate operation and a resolution was passed authorising the Council to take steps to attempt to obtain a fund for the operation of this Bureau and the adequate publication of the bulletins as a *complete* Index Pathologicus

The Canadian National War Museum gave two important contributions Museum Records Illustrating Facial War Injuries demonstrated by Major F F Risdon of Toronto and Lantern Slides from Water-colour Paintings showing the Canadian Army Medical Arrangements at the Front by Major G A Campbell of Ottawa and a smaller exhibit of Pathological Specimens showing *Bacillus Aerogenes* Infections following Gunshot Wounds by Major F B Gurd of Montreal

Professor James Ewing of Cornell showed a large series of tumours of bone which included some unusual forms of cell neoplasm F S Jackson of Montreal communicated notes on a new preservative fluid (formalin-sugar acting by absorption) for delicate specimens and W M L Coplin of Philadelphia a new method for the permanent mounting of Kaiserling specimens without immersion in fluid *which promises to be of much technical* value

Other items of interest were a detailed study by Dr Ira G Dyar of Washington on the technique of the Preservation of Serial Sections of the Brain and Cord for Microscopical Study *Note on* the Preservation of an Amyloid Spleen by William Boyd of Winnipeg The Teaching Value of the Small Museum Specimen by O Klotz of Pittsburg A Method for Prolonged Preservation of Stock Cultures *of Bacteria* by *Homer F Swift of New York*

"Demonstration Exhibit of Organism, Cultures, and Lesions in Acute Epidemic Encephalitis (Lethargica)," by Leo Loewe and Israel Strauss, of New York; "Stereoscopic Pictures of Dissections of the Actual and Accessory Muscles of the Eye," by S. E. Whitnall, of Montreal; "Dissection of a Case of Duplication of Œsophagus, Stomach, and Small Intestine, the Second Œsophagus communicating with Blind End of Foregut at Back of Neck," by A. C. Freedman, of Montreal; "Sympus Apus and Bipus," by S. Chelliah, Madras, India.

The following officers were elected for the ensuing year: President: W. M. L. Coplin, Philadelphia. Vice-Presidents: James Ewing, New York; Howard Karsner, Cleveland; H. E. Robertson, Minneapolis. Councillors: A. S. Warthin, Ann Arbor; O. Klotz, Pittsburg; R. A. Lambert, New Haven; C. F. Silvester, Washington, D.C.; W. G. MacCallum, Baltimore; Lawrence Rhea, Montreal. Secretary-Treasurer: Maude E. Abbott, Montreal. Assistant Secretaries: L. Gross, Montreal; H. Goldblatt, Cleveland.

Annual Exhibition.

The annual exhibition of the society of material illustrating papers upon the programme of this Association and of the Association of Pathologists and Bacteriologists was held also at Cornell on April 1st and 2nd for the benefit of both societies, and presented an attractive and comprehensive scientific display, which was largely attended and much appreciated.

Among the exhibits presented by the American Association of Pathologists and Bacteriologists were the following:—"Coarctation of the Aorta with Bicuspid Aortic Valve and Rupture of the Aorta," by Harry Goldblatt of Cleveland; "An Endothelial Leukocytosis by Injection of Saprophytic Tubercle Bacilli," by F. J. McJunkin of Milwaukee; "Tissue Reactions to Tubercle Waxes," by Plinn F. Morse of Detroit; "Glomerular Lesions in the Healed (Abacterial) Stage of Chronic Bacterial Nephritis," by George Baehr, of New York; "Monocytic Leukæmia," by N. Rosenthal, of New York; "Observations in Experimental Histogenesis of Experimental Tubercles in the Lungs of Vitally Stained Rabbits," by H. Chandler-Foot, of Boston; "Metaplasia so Illustrated in Leukoplakia of the Pelvis of the Kidney," by De Wayne G. Richey, of Pittsburg; "Defects of the Aortic Septum in Explanation of Congenital Aneurysms of the Right Aortic Sinus of Valsalva, with Associated Interventricular Septal Defect," by Maude E. Abbott, of Montreal; "Bone Syphilis in the Rabbit," by Louise Pearce and Wade H. Brown, of New York.

URBAN VITAL STATISTICS.

(Week ended May 29th, 1920.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 18 million persons, the annual rate of mortality, which had been 13·8, 13·8, and 13·2 in the three preceding weeks, further declined to 12·8 per 1000. In London, with a population of nearly 4½ million persons, the annual death-rate was 12·1, or 0·1 per 1000 above that recorded in the previous week, while among the remaining towns the rates ranged from 3·3 in Hornsey, 5·4 in Enfield, and 6·6 in Ilford, to 19·3 in Middlesbrough, 25·5 in West Hartlepool, and 26·5 in Sheffield. The principal epidemic diseases caused 275 deaths, which corresponded to an annual rate of 0·8 per 1000, and comprised 108 from measles, 61 from infantile diarrhœa, 45 from whooping-cough, 40 from diphtheria, 15 from scarlet fever, and 6 from enteric fever. Measles caused a death-rate of 1·8 in Leicester, in Wigan, and in Newport (Mon.), 1·9 in Dudley, 2·5 in Acton and in Blackburn, and 2·6 in Rhondda. The deaths from influenza, which had been 201, 216, and 211 in the three preceding weeks, further fell to 188, and included 77 in Sheffield, 26 in London, 12 in Manchester, and 6 in Rhondda. There were 1797 cases of diphtheria and 1703 of scarlet fever under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 1894 and 1734 respectively at the end of the previous week; the last remaining case of small-pox was discharged during the week. The causes of 31 of the 4380 deaths in the 96 towns were uncertified, of which 9 were registered in Birmingham, and 3 in Manchester.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2½ million persons, the annual rate of mortality, which had been 18·4, 16·9, and 15·6 in the three preceding weeks, further declined to 14·2 per 1000. The 316 deaths in Glasgow corresponded to an annual rate of 14·8 per 1000, and included 10 from measles, 8 from influenza, 4 from diphtheria, 2 each from small-pox and infantile diarrhœa, and 1 each from scarlet fever and whooping-cough. The 92 deaths in Edinburgh were equal to a rate of 14·1 per 1000, and included 3 from infantile diarrhœa and one each from measles and scarlet fever.

Irish Towns.—The 152 deaths in Dublin corresponded to an annual rate of 19·1, or 2·4 per 1000 below that recorded in the previous week, and included 12 from whooping-cough, 7 from measles, 6 from infantile diarrhœa, 4 from influenza, and 2 from diphtheria. The 122 deaths in Belfast were equal to a rate of 15·4 per 1000, and included 3 from influenza, 2 each from measles, scarlet fever, and infantile diarrhœa, and 1 from enteric fever.

Correspondence.

"Audi alteram partem."

REPORT OF THE CONSULTATIVE COUNCIL: COÖPERATION OF RED CROSS.

To the Editor of THE LANCET.

SIR,—The report issued by the Consultative Council of the Ministry of Health (THE LANCET, May 29th, p. 1183) embodies recommendations which will necessarily entail a considerable increase in the work of transport of the sick and injured in this country, and the Council draw special attention to the necessity for an ambulance service.

I am happy to say that the Joint Council of the British Red Cross Society and the Order of St. John has been able to anticipate this demand and has, during the past 12 months, established over 300 motor ambulance stations throughout the country. That the need existed for an efficient ambulance service even before the establishment of the system of linked hospitals foreshadowed in the report, is shown by the fact that though a large proportion of the ambulances have been in service for only a few months they have already been the means of transporting over 12,000 cases.

The administration of our ambulances has been delegated through county directors to local organisations or public health authorities as circumstances dictated, but central control of the service is maintained at headquarters, and we are thus in a position to develop and extend the scheme on such lines as may prove most desirable to meet the needs of a coördinated health service.—I am, Sir, yours faithfully,

ARTHUR STANLEY,
Chairman, Joint Council, British Red Cross Society and Order of St. John.

19, Berkeley-street, W., May 29th, 1920.

THE STANDARDISATION OF COLOUR PERCEPTION.

To the Editor of THE LANCET.

SIR,—I do not wish in any way to depreciate Dr. Edridge-Green's work on colour vision, but I think that if, as is very possible, his work has been undervalued in the past, the pendulum has now swung in the opposite direction, and the work of others is being unjustly depreciated in his favour. Your own review of his book (THE LANCET, May 29th) is an appreciation which adopts a much more judicial attitude than is found in some other reviews which have appeared, and it is because I am convinced that it is the aim of THE LANCET to establish scientific truth and be just to all that I venture to hope that you will allow me to make a few remarks on one or two of your statements.

You attribute to Dr. Edridge-Green "the removal of the colour-discriminating faculty from the retina, where the theories of Helmholtz and Hering would place it, to the brain." When we remember that Helmholtz in his Physiologische Optik proved himself no mean psychologist, as well as mathematician and physicist, that Hering in his Lehre vom Lichtsinn treats specially the psychological aspects of the problem, and that numberless physiologists and psychologists have been more or less staunch adherents to one or other of the theories propounded by these authors, it is clear that these theories by no means ignore the part which the cerebral apparatus plays in the perception of colours. Dr. McDougall's papers in *Mind*, for example, deal profoundly with the cerebral apparatus of colour vision, and have received far less attention than is due to them. Von Kries, following Donders and A. Fick, quite definitely regards the three components theory as only a partial explanation, applicable, indeed, chiefly to the events taking place in the peripheral mechanism, which events are modified and transformed in the higher visual centres (theory of zones). That the events which occur in the peripheral apparatus of vision and audition are more complex than in any other sense organ would be admitted by Dr. Edridge-Green, and is, indeed, asserted in his writings, and I imagine every psychologist would predicate important modifications of the nervous impulses in the cerebral centres, and some portion of the cortex as the sole nervous mechanism concerned in the conscious appreciation of the transformed impulses.

With regard to tests for colour-blindness I freely admit that I have personally adopted a perhaps too cautious and conservative attitude to innovations. Considerable experience in testing for colour-blindness has convinced me that the Holmgren wool-test is better discarded—not because it is so faulty as has been stated, but because it requires great experience on the part of the examiner and more intelligence than is to be expected of the examinee. Moreover, it is inherently objectionable to sailors and railway-men. But I would also point out that it is very easy for incompetent examiners to pass seriously colour-blind men with Dr. Edridge-Green's colour-perception lantern. I quite agree that it is a good test in the hands of an expert examiner, but prolonged experience has shown that the Board of Trade lantern is better, because it is more "fool-proof." If the Board of Trade had not adopted the unwise policy of disallowing the commercial exploitation of their lantern, I feel sure that it would have been generally used. The principles of this lantern were published in the report of the Departmental Committee on Sight Tests, and I am surprised that no one has put a lantern of this design on the market. If I had not been intimately connected with the Board of Trade examinations I should long ago have endeavoured to get this done.

I fear I have already trespassed upon your courtesy. I will only add that, although controversy in the press is thoroughly repugnant to me, I propose to deal more in detail with Dr. Edridge-Green's theories of vision elsewhere. I am, Sir, yours faithfully,

J. HERBERT PARSONS.

Queen Anne-street, Cavendish-square, W., May 29th, 1920.

ANOMALOUS VARIOLOID DISEASE.

To the Editor of THE LANCET.

SIR,—In dealing with cases such as reported by Dr. W. Allingham, and referred to in your editorial note of May 29th (p. 1179), the peril of delaying a diagnosis is obvious, and equally so is the difficulty of those responsible in giving a definite opinion with desirable quickness. Dr. Allingham would solve the problem by requiring "isolation of chicken-pox for 10 days." But it is not apparent that this would do more than provide time for much professional contention by local practitioners favouring opposite opinions, whilst case after case appeared without decisive classical signs—a state of affairs well illustrated on the first appearance of the "mild type" of small-pox in Australia in 1913. The Leicester school makes this difficulty the chief doctrine of its practice in not urging infantile vaccination—unmindful of possible mortality—so that the practitioner may have the advantage of demonstrations of unmodified small-pox! This is a method of facilitating diagnosis which, happily, is not likely to find much favour beyond the confines of Leicester. Hence, I venture to make an addition to Dr. Allingham's useful suggestion which could be put in force at once by notifying selected existing laboratories throughout the country, and would be easy of adoption on coming into force of the recent scheme of the Ministry of Health for "Medical and Allied Services"—namely, isolation of cases of suspected varicella or small-pox pending a decision arrived at in the laboratory of a "Secondary Health Centre." Here the allergic test in rabbits previously sensitised by anti-smallpox vaccine could be employed. According to Dr. John Nivison Force and Helen Howell Beckwith[1] on intradermal inoculation of the contents of the dubious vesicles, a diagnosis of variola may be arrived at if there be a cutaneous reaction within 48 hours. Probably the reaction would be more readily demonstrable were calves used instead of rabbits. It will be remembered that the laborious experiments by Dr. W. G. Armstrong,[2] Senior Medical Officer of Health, New South Wales, associated with Dr. Burton Cleland and Dr. E. W. Ferguson, have removed all doubts so far expressed that the American "mild type" of small-pox imported to Australia, and which I think it more reasonable to dub the "amaas strain" (and thus relieve our cousins from being regarded as the *fons et origo mali*), is of the nature of variola. On the other hand, W. Stoelzner[3] has shown that in an epidemic of varicella during the war the type was so virulent that, both in regard to constitutional symptoms and character of the vesicles, there was a close resemblance to variola.

I am, Sir, yours faithfully,

W. G. KING,

May 29th, 1920. Colonel, I.M.S. (Ret.)

To the Editor of THE LANCET.

SIR,—Referring to the annotation on Anomalous Varioloid Disease in your issue for May 29th, and to the paper by Dr. W. Allingham in the same issue, to which you refer, it may be of interest to state that I had the opportunity of seeing, in consultation, not only Dr. Allingham's cases, but also a further series of cases directly related to them which subsequently came under observation at West Ham. The infection was conveyed by the son of one of the Orsett cases, who visited his father at Grays for three days, during which time father and son slept in the same bed. This man and seven children have all since been attacked by the disease.

There can, in my opinion, be no doubt but that the type of the disease with which the Orsett and West Ham cases have been affected is similar to that experienced in the earlier outbreak to which you refer as having been investigated recently by myself in a limited area on the borders of Norfolk and Suffolk. In both outbreaks the symptoms and general course of the disease more nearly resembled those of alastrim than of typical small-pox.

I am, Sir, yours faithfully,

May 31st, 1920. S. MONCKTON COPEMAN.

THE CLINICAL DIAGNOSIS OF DIPHTHERIA.

To the Editor of THE LANCET.

SIR,—Whilst recognising fully the value of Dr. H. Drinkwater's observations on the naked-eye appearance of the fauces in diphtheria, there are a few points where danger to the patient would arise if they are relied upon—as the trend of his article seems to me to suggest—as an alternative to bacteriological investigation of the lesion.

(*a*) "In diphtheria the patch is raised above the level of the mucous membrane." Here the danger lies in eliminating coexistent scarlet fever and diphtheria, where the lesion frequently consists of a loss of surface without any raised deposit, and is followed by diphtheritic toxæmia and paralysis. Such cases are commonly seen on admission to every large fever hospital.

(*b*) "If the deposit is single in each affected area the disease is either diphtheria or Vincent's angina ...... in the period of growth." This feature, whilst useful in children, is fallacious in adults. Repeatedly have I seen true diphtheria on the first day of the disease (in nurses especially) with a distribution of the deposit indistinguishable from that of follicular tonsillitis.

(*c*) It is a pity that Dr. Drinkwater's paper makes no allusion to scarlet fever. In children this complaint may give rise to faucial appearances over-riding every one of the postulates in his paper, and is in practice *the* disease in which the differential diagnosis is most important.

(*d*) "A bacteriological examination may mean a delay of 24 or 48 hours, with possibly disastrous results." Certainly, if the criminal mistake is made of waiting for the result before segregating the patient and administering antitoxin. But does any careful practitioner do this nowadays?

If Dr. Drinkwater's precepts are largely followed I think that the uncomfortable—and sometimes tragic—occurrence in convalescence of diphtheritic heart failure or paralysis in a patient whose case had been
as non-diphtheritic, will be much more freque
it now is. Moreover, many of these cases of "t

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[1] Jour. Amer. Med. Assoc., 1915, August 14th, vol. lxv., No. 7, pp. 588-593.

[2] Report of the Director-General of Public Health, . Wales, 1913.

[3] Quoted by the Bulletin de l'Office International Publique, p. 1344, vol. ii., No. 12.

may also peel and develop scarlatinal nephritis! The danger lies not in Dr. Drinkwater's relying on his own skilled eye and careful observation, but in others attempting to follow him without bacteriological assistance; hence the warning note in this letter.

I am, Sir, yours faithfully,
A. KNYVETT GORDON,
Formerly Medical Superintendent of the Manchester City Fever Hospital and Lecturer on Infectious Diseases in the University.
Bedford-square, W.C., May 31st, 1920.

To the Editor of THE LANCET.

SIR,—Dr. H. Drinkwater's article in your columns last week upon the diagnosis of diphtheria and throat exudations is one of those things that make the reader ask if it is not too good to be true. The author may have deceived himself, even while we admit the obvious sincerity of his observations as well as the good opportunities which he enjoyed while making them.

If Dr. Drinkwater's experience proves to be borne out by other physicians, clinical observation will be greatly in his debt. I am, Sir, yours faithfully,

May 29th, 1920. A VETERAN.

THE SURGICAL TREATMENT OF UTERINE AND VAGINAL PROLAPSE.

To the Editor of THE LANCET.

SIR,—In your issue of May 15th my friend, Dr. W. E. Fothergill, complains that my interpretation of his words is not correct. I greatly regret that I should have misunderstood them, for they are quite clear; but, perhaps, by so doing I shall prevent everyone who reads the same words from falling into a similar error. Nevertheless, the views expressed in my lecture remain unchanged in regard to the importance of puerperal retroflexion and the necessity of curing the condition. I do not think Dr. Fothergill really holds strong views to the contrary: I have too high a regard for his opinion and experience.

What we want, Sir, are facts and figures, not nebulous mental impressions. This is very evident when one peruses the long mystic letter of Mr. R. H. Paramore. He is subversive without being destructive. He uses strange and obscure phrases, such as: "But this pelvic floor is for him (W. B. B.) apparently a visceral structure." I confess I may be wrong in my conception of the meaning of this statement. If Mr. Paramore intends to imply that I consider the musculature of the utero-sacral and utero-pubic "ligaments" visceral he is right in so far as the uterus is a viscus, and these muscle-bundles, like the muscle-fibres in the round "ligaments," are morphologically continuous with the external coat of the uterus. But, earlier in this letter, he states: "(W. B. B.) pays no attention to the musculature occluding the outlet; and in his surgical treatment limits himself for the most part to visceral structures, as though this musculature did not exist and is not concerned with the genesis of prolapse."

I mentioned—as Mr. Paramore recognises—that I could not in one lecture discuss every aspect of the subject, adding, "but it goes without saying that much can be accomplished in the way of prophylaxis, and that all surgical procedures are based on a correct appreciation of the normal anatomical conditions and on the lesions present in prolapse." By prophylaxis was meant, as any one should know, not only the non-operative and operative treatment of puerperal retroflexion, but also the careful conduct of labour.

If Mr. Paramore will turn to p. 42, et seq., of the third edition of my "Principles of Gynæcology," he will find I have taken some trouble to describe—briefly, and I hope intelligibly—the musculature of the pelvic outlet; and, if he will glance at the section on operative procedures, he will observe how much I *am* concerned with the musculature, without, I hope, being tedious. Moreover, it will please Mr. Paramore to find, in the appropriate section, such headings as "The acquired form of *hernial* prolapse" and "Other *herniæ* of the uterus" (*italics here to indicate the important word*), and so on *ad nauseam*, as Dr. Fothergill would say.

I think, Sir, the time has come when we should be glad to have Mr. Paramore's methods and figures in regard to the no doubt very large number of cases of prolapse on which he has operated. I imagine, from the way he writes, that they are far superior to my own or those of anyone else. Once a student always a student, I shall, therefore, be only too willing to learn from anyone how to reach "the zenith," and how better to cure prolapse than by the methods I practise; but I beg Mr. Paramore, or whoever my mentor is to be, in order to save time, to select for the demonstration a case of "congenital" procidentia, not to use paraffin to increase the "viscosity of the visceral parts concerned"—another strange phrase of Mr. Paramore—and to let me see the result 18 months after the "wave of the hand," or whatever the procedure may be. I shall be glad to return the compliment at any convenient time. I am, Sir, yours faithfully,

Liverpool, May 31st, 1920. W. BLAIR BELL.

PS.—I do not think Mr. Paramore need be anxious about his interposition case that had a fibroid in the uterus. Any competent surgeon who, in the event of further trouble, has to deal with the matter will thank him for making the uterus so accessible.

To the Editor of THE LANCET.

SIR,—Prolapsus uteri is nothing but a hernia, and therefore subject to the rule which applies to the treatment of hernia wherever it occurs—namely, the proper closure of the aperture or ring through which the intra-abdominal structures protrude by an adequate reconstruction of the impaired parietal wall or surface. How to do this effectually has exercised the mind of every gynæcologist. Plastic operations, however carefully and extensively performed, fail in a fair proportion of cases to prevent visceral extrusion, and especially the recurrence of the cystocele; hence the advent of the interposition operation. I agree with Dr. Blair Bell that the latter gives excellent results, impaired by the fact that sepsis, due to defective sterilisation of the uterine and cervical mucous surfaces, sometimes complicates convalescence. But the interposition operation is at the best a makeshift. The correct way to stop a hole in a wall is not by shoving a plug through the aperture. I have seen women, some operated upon by others, some by myself, where the "bouchon utérin," as the French call it, protruded behind an overstretched perineum.

I believe that the only effective way to treat procidentia uteri is a reconstruction of the whole of the pelvic floor from above downwards, including the peritoneum, the subjacent mass of fibro-muscular and adipose tissue forming the base of the broad ligaments, the muscular and fibrous slings underlying these, and, finally, the vaginal outlet, together with the skin covering the perineum. Dr. Blair Bell has attempted this by bringing together intra-peritoneally the utero-sacral ligaments, obliterating Douglas's pouch, slinging upwards the whole visceral pelvic floor, limiting its downward distensibility and declivity, the whole combined with plastic operations. Hence his large percentage of successes. But the same results can be obtained without opening the abdomen. The operation is not as elegant and easy as if done by laparotomy, but it is equally successful. It simply consists in extending the colpo-perineorrhaphy right up to Douglas's pouch, opening the latter, and then by means of a curved needle with silk ligature bringing together the two utero-sacral ligaments, as well as the base of the broad ligaments, thus obliterating Douglas's pouch from below. This operation is no new thing; it was described long ago in America as the correct way of treating uterine deviations. It corrects these, while at the same time it arrests any tendency to descend. In severe procidentia, especially that occurring after the menopause, it is advisable to sacrifice the uterus. The operation is then still easier; not only the utero-sacral ligaments but the whole of the base of the broad ligaments are sewn up in one firm bunch. This, coupled with a myorrhaphy of the levator ani and an extensive anterior and posterior colpo-perineorrhaphy, invariably gives good results, even in the worst cases.

I am, Sir, yours faithfully,
G. A. CASALIS DE PURY,
Late Consulting Gynæcologist to the Victoria Hospital, Winburg, Cape.
Wimpole-street, W.

SINCERE FLATTERY

To the Editor of THE LANCET

SIR,—The Executive Council of the Federation of Medical and Allied Societies recently invited the Council of the British Medical Association to reopen the conferences held between various medical bodies in the summer of 1919 The organisations which took part in those conferences were the British Medical Association, the Federation of Medical and Allied Societies (then the Medical Parliamentary Committee), the Medical Women's Federation, the Medico Political Union, and the Association of Panel Committees At the final conference it was agreed "that the members of the conference should report the findings to their constituent bodies, *and that the calling of a further conference should* depend on the attitude taken by those bodies'

In accordance with the terms of this agreement, and after ascertaining that four of the five bodies concerned desired it, my Executive Council wrote to the British Medical Association on March 23rd, 1920, and the *following reply, dated May* 28th, 1920, has been received —

British Medical Association 429 Strand W C 2

DEAR SIR —Your letter of March 23rd was placed before the Council of the Association at its meeting on the 19th inst when I was instructed to say that the Council sees no useful purpose in reopening the former conferences The Council is recommending to the Representative Body the widening of the constitution of the Association so as to allow it to offer federation or affiliation to *medical bodies which care to enter into such relations with the* Association If these recommendations are accepted by the Representative Body it is proposed later in the year to hold conferences with medical societies representing sectional interests with a view to determining how best to carry these proposals for affiliation or *federation into effect* Yours faithfully

(Sd) ALFRED COX Medical Secretary

It would appear that the Council of the Association has in contemplation the possibility of reconstructing itself on the lines of this Federation

I am, Sir, yours faithfully,

N HOWARD MUMMERY,

General Secretary Federation of Medical and Allied Societies
5 Vere street Cavendish square W May 31st 1920

*** We continue to hope that the British Medical Association will find a way to coöperate with the Federation of Medical and Allied Societies in the common object of unifying the aims of medicine and the public for useful legislation in the future —ED L

Medical News.

UNIVERSITY OF LONDON —At examinations held recently the following candidates were successful —

THIRD (M B B S) EXAMINATION FOR MEDICAL DEGREES

Iskander Mikhail Abd El Said Univ Coll Hosp Basil William Armstrong St Mary's Hosp Eric Miles Atkinson St Bart's Hosp Marjorie Back London Sch of Med for Women Christian Frederick Beyers St Bart's Hosp John Anthony Birrell Cardiff and Bristol Univs and St George's Hosp William Roy Blore Manchester Univ Thomas George Doughty Bonar Guy's Hosp Ella Marianne Britten St George's Hosp William Wallace King Brown Ernest Edwin Carter and Duncan Gillard Churcher St Thomas's Hosp Walter Herbert Coldwell Westminster Hosp Hedley Chave Cox and Ralph Coyte St Bart's Hosp Joyce Emily Craggs St Mary's Hosp Ernest Ivon Davies Charing Cross Hosp Sarah Helen Davies London Sch of Med for Women Harold Aylmer De Morgan Middlesex Hosp Geoffrey Barrow Dowling (*honours distinction in Medicine*) Guy's Hosp Charles Yarrow Eccles St Thomas's Hosp Albert Eidinow London Hosp George Ernest Elkington (honours distinction in Pathology) Birmingham Univ Thomas Leslie Ellis St George's Hosp Abel Evans Charing Cross Hosp James Fanning London Hosp Kathleen Field St Mary's Hosp Alice Muriel Griffiths London Sch of Med for Women and Univ Coll Cardiff Ernest Frederick Guy Univ Coll Cardiff and Univ Coll Hosp Henry Lewis Heimann Univ Coll Hosp Cecil Edward Lede Herington Christopher Langton Hewer and Norman Hammond Hill St Bart's Hosp George Philip Buckingham Huddy (honours distinction in Surgery) London Hosp Grayson Oscar Hume Guy's Hosp Donald Hunter London Hosp Ernest Francis Kirby and George Edwin Kidman Guy's Hosp Joseph Victor Landau St Bart's Hosp Sidney Simon Lindsay and Norman Leac Lacy Lund St Thomas's Hosp Hugh Montagu Cameron Macaulay St Bart's Hosp Peter George McEvedy Guy's Hosp Syed Francis Mahmood St Bart's Hosp Ida Caroline Mann London Sch of Med for Women and St Mary's Hosp Maurice Marcus (honours distinction in Forensic Medicine and Surgery) London Hosp Jal Pescuji Padshah Univ Coll Hosp Dorothy Pantin London Sch of Med for Women Wilfrid Walter Payne Guy's Hosp Norman August Marais Peterson London Hosp North Dorothy Pinkerton London Sch of Med for Women Beatrice Davidine Pullinger London Sch of Med for Women and St Mary's Hosp Arthur Leslie Hanworth Rackham Middlesex Hosp Henry Elliott Reburn King's Coll Hosp Frances Elinor Rendel London Sch of Med for Women and St Mary's Hosp Esther Rickards St Mary's Hosp Henry Colwell Rook Guy's Hosp James Paterson Ross (honours distinction in Forensic Medicine and Surgery University medal) St Bart's Hosp Trevor Cecil Russell St Mary's Hosp Edward Jeffrey Samuel Charing Cross Hospital Philip Dennis Scott Guy's Hosp James Victor Alexander Simpson Middlesex Hosp Gerald Maurice Joseph Slot (honours distinction in Medicine) St Bart's Hosp Joseph Bulmer Thackeray London Hosp Jeremias A ret van Heerden St Bart's Hosp Alfred Stewart Wakely King's Coll Hosp Robert Lawrence Walker St Mary's Hosp Morris John Theodore Wallis Guy's Hosp Leslie Herbert Worthy Williams Univ Coll Hosp Frederick Edward Saxby Willis St Bart's Hosp Jane Edith Wood Leeds Univ and William Yeoman Univ Coll Hosp

SOCIETY OF APOTHECARIES OF LONDON —At examinations held recently the following candidates passed in the subjects indicated —

Surgery —G S Ashby (Sect II) King's Coll Hosp J G Barrie (Sects I and II) Guy's Hosp M L Barst (Sect I) London Hosp C C Bennett (Sect II) and W H Collier (Sect II) Guy's Hosp M J Erdberg (Sects I and II) Durham A Keilin (Sects I and II) Paris and Charing Cross Hosp J Kendall (Sects I and II) Guy's Hosp W A O Connor (Sect I) Oxford and Birmingham W H Summerskill (Sect I) Guy's Hosp, and G V L Van Acker (Sects I and II) Oxford and Birmingham

Medicine —L Burvill Holmes (Sects I and II) Guy's Hosp A R Crane (Sects I and II) London Hosp M J Erdberg (Sects I and II) Durham A G B Fenwick (Sect II) St Thomas's Hosp and A Furniss (Sect II) Manchester

Forensic Medicine —L Burvill Holmes Guy's Hosp M J Erdberg Durham and H D L Jones St Mary's Hosp

Midwifery —M J Erdberg Durham P N Gray King's Coll and Westminster Hosps and G V L Van Acker Oxford and Birmingham

The Diploma of the Society was granted to the following candidates entitling them to practise medicine surgery and midwifery G S Ashby J G Barrie C C Bennett M J Erdberg A G B Fenwick A Furniss A Keilin and J Kendall

UNIVERSITY OF CAMBRIDGE —The State Medicine Syndicate recommend that a University Lectureship in *Medical Radiology and Electrology should be instituted for* a period of five years from June 1st 1920

UNITED SERVICES MEDICAL SOCIETY —A general meeting of this society was held at the Royal Army Medical College on May 28th when it was resolved that the society should amalgamate with the War Section of the Royal Society of Medicine on the condition that its members were accepted without entrance fee to the section but subject to an annual fee of one guinea The society decided to hand over to the Royal Society of Medicine the balance of cash as shown on the books on Jan 1st, 1915 the remainder to be divided amongst the subscribers to the society since that date To permit of this adjustment it is requested that the subscribers in question will forward their present addresses to Major E M Middleton the secretary of the United Services Medical Society, at the Royal Army Medical College Grosvenor road S W

WEST LONDON MEDICO CHIRURGICAL SOCIETY —An ordinary meeting of this society will be held to-day Friday, at 8 30 P M in the society's rooms West London Hospital Dr Herbert Chambers the *President in the chair* A paper will be read by Dr Ernest Snowden entitled 'A Short Method of Psychological Analysis'

The Cavendish lecture will be given by Professor C S Sherrington on 'Posture' and a conversazione will be held at the Kensington Town Hall on Friday June 25th Members desiring tickets for guests are requested to communicate at once with the senior honorary secretary Dr J J Halls Dally 93 Harley street, London, W 1

FLECHSIG'S JUBILEE —On May 23rd the well known Leipzig anatomist and psychiatrist, Paul Flechsig celebrated the fiftieth anniversary of his graduation Born at Zwickau in 1847, he attended the gymnasium there going on to study medicine in Leipzig When assistant at the University Physiological Institute his first considerable work on Conduction Paths in the Brain and Spinal Cord attracted the attention of his master Ludwig whose influence with that of Kussmaul and Meynert brought Flechsig within two years of his graduation to the rank of professor In 1882 he took over the Neurological Clinic built and furnished on plans drawn up by himself whose chief he still is Flechsig holds an honorary doctorate in the Faculty of Exact Sciences at Oxford and is an honorary member of learned societies in Dorpat Dresden Florence Kieff London Munich Paris Petrograd Rome and Vienna On the day of his jubilee the firm of Georg Thieme of Leipzig issued as a Festschrift the first volume of a monumental work on the Anatomy of the Human Brain and Spinal Cord on a Myelogenetic Basis on which the veteran psychiatrist has been intensively engaged for ten years

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THE Board of Governors of the American Hospital in London are giving a dinner at Claridge's Hotel on July 6th, at which the guest of the evening will be Dr. Charles W. Mayo, of Rochester, U.S.A. The American Ambassador, Lord Bryce, and Lord Reading are associated with the hosts of the dinner, and Mr. Philip Franklin, 27, Wimpole-street, W., is acting as honorary secretary.

Dr. Addison has appointed Mr. Llewelyn Williams, M.C., to be Medical Member of the Welsh Board of Health with the status of a Senior Medical Officer of the Ministry of Health. Dr. Meredith Richards, who has been acting temporarily as medical member of the Welsh Board of Health, has been appointed to the headquarters establishment of the Ministry of Health.

IMPERIAL WAR MUSEUM AND GREAT VICTORY EXHIBITION.—The opening ceremony of the above exhibition will be held at the Crystal Palace on Wednesday, June 9th, at 11.15 A.M., when the King will preside. We learn that the war exhibits are of a most interesting and varied character, and should occupy the visitor's attention for some time. Medical men will be attracted, amongst other sections, to the Naval Medical Section, organised by Surgeon-Commander M. H. Knapp, R.N. Altogether the exhibition promises to be a great national event.

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A HOLIDAY COURSE IN TUBERCULOSIS.—A holiday course, under the auspices of the Assistance Publique of Paris, will be held from July 19th to 31st, each day at 2 P.M., at the Maritime Hospital at Berck-sur-Mer (Pas-de-Calais). It will consist of 12 lessons on osteo-articular and ganglionic tuberculosis and some elements of practical orthopædics by the following medical men: M. Menard, honorary chief surgeon of the Maritime Hospital; M. Sorrel, chief surgeon; MM. Andrieu and Tridon, assistant surgeons; M. Mozer, chief of the hospital laboratory; M. Parin, chief of the laboratory of radiology of the hospital. The course will comprise the elements of diagnosis furnished by the laboratory and radiology, Pott's disease, coxalgia, tuberculosis of the knee and tarsus, tuberculosis of the shoulder, elbow, and wrist, tuberculous osteitis, non-tuberculous osteitis and chronic osteo-arthritis with their clinical and laboratory diagnoses, chronic adenitis, helio-marine, radiotherapeutic and surgical treatment, rickets and its treatment, deformities and osteo-articular troubles of adolescence, scoliosis and its treatment. The mornings will be devoted to practical demonstrations as follow: Clinical examinations on Mondays, operations and punctures on Tuesdays and Fridays, plasters Wednesdays and Saturdays, laboratory demonstrations Thursdays. The fee for the course is 150 francs (Internes of the Paris hospitals are exempt). Enrolment should be made by letter addressed to Dr. Parin, Hôpital Maritime, Berck-Plage (Pas-de-Calais), France.

EAST SUSSEX HOSPITAL.—The governors of the East Sussex Hospital at Hastings have elected Dr. H. Stanley, Mr. J. W. M. King, and Mr. H. Groome as the first honorary life governors in recognition of valuable work in the interests of the institution.

ROYAL DEVON AND EXETER HOSPITAL.—As a result of the appeal for £20,000 for the extension of the Royal Devon and Exeter Hospital the sum of £12,622 has been received, and it is hoped that the remaining amount will be shortly subscribed.

DEVON AND CORNWALL EAR AND THROAT HOSPITAL, PLYMOUTH.—At the annual meeting of the subscribers to this institution held on May 28th it was reported 1014 patients had been treated compared with 760 in 1918. The financial statement showed a deficit of £100. The chairman, the mayor, alluded with regret to the retirement of Mr. C. E. Bean, who had been honorary surgeon to the hospital since its foundation 33 years ago, and paid a tribute to the value of his services.

THE LATE MR. W. EAGER.—Wilson Eager, L.R.C.P., M.R.C.S., L.S.A., died at his residence, Woodbridge, Suffolk, in his seventy-sixth year. The deceased was a son of the late Mr. R. Eager, a surgeon, of Guildford. He was for 27 years medical superintendent of the Suffolk County Asylum, Melton, now known as St. Audry's Mental Hospital. He resigned in 1897, and joined his elder brother at Northwoods Private Asylum, near Bristol; ten years later he retired from active work, and went to live at Woodbridge, Suffolk, where he was highly esteemed. His son, Dr. Richard Eager, is deputy medical superintendent of the Devon Mental Hospital.

BRITISH WATERWORKS ASSOCIATION.—The ninth annual general meeting of this association will be held in the Council Chamber, The Exchange, Nottingham, on Thursday, July 1st. The proceedings include the reading and discussion of interesting papers on water undertakings from both the economic and hygienic point of view, and the members of the association and their friends are invited to visit the filtration plant and pumping stations belonging to the Nottingham corporation. The sources of water-supply in Nottingham are manifold, including the moorland area of the Derwent Valley, the deep wells in sandstone at Bestwood and Boughton, and the artesian boreholes at Burton Joyce. The meeting altogether promises very interesting proceedings.

MATERNITY HOME FOR SAILORS' WIVES.—The Central Commtitee of the Navy League has given £30,000 for the establishment of maternity homes for the wives of sailors and Marines at each of the three principal naval ports—Portsmouth, Devonport, and Chatham—£10,000 for each port. In 1917 the women of Canada collected a handsome sum as an expression of their admiration for the British Navy. Of that money £3000 were handed over to the Commander-in-Chief at Portsmouth for maternity purposes. A meeting to inaugurate a scheme for its application was held in the Town Hall, Portsmouth on May 26th, when it was stated that a suitable house in Southsea had been purchased for £4000 and was being equipped as a maternity home. The plans have now received the official approval of the Ministry of Health. The institution of the home has the support of all ranks and ratings in the navy.

TUBERCULOSIS IN ABERDEENSHIRE.—Dr. H. J. Rae, the tuberculosis officer for the county of Aberdeen, has completed his fourth annual report. He states that the tuberculosis death-rate for the county of Aberdeen during 1919 was the lowest for six years, the number of cases notified being 342; 242 of these were pulmonary and 100 non-pulmonary or surgical tuberculosis. 248 were notified in the districts and 94 in the burghs—that is, 2·1 per 1000 in th former and 2·3 per 1000 in the latter case. Of the case notified, 180 were males and 162 females. During the yea in the county of Aberdeen 50 soldiers and sailors receive treatment in institutions, 78 were treated either at thei homes or at the dispensary, and 12 had the use of shelters The sources of notification were: from general practitioners 267; from military and naval medical officers, 45; from medical officers of medical and surgical hospitals, 9; from medical officers of health of other areas ("transfers"), 8 from medical officers of asylums, 8; from school medica officers, 3; from tuberculosis medical officers, 2. The repor again calls attention to the large number of "box-beds" still in existence, although they are less common than they formerly were, and also to the surprising number of tuberculous persons who, without the knowledge of their doctor, try and use quack medicines, paying perhaps 24*s.* for a bottle the contents of which would probably only cost 9*d.* It is the poorer class of patient who purchase those supposed remedies, and in many cases they stint themselves of the necessaries of life in order to secure a phantom cure. Dr. Rae urges that the composition of those quack remedies should be exposed, and, if possible, their sale prohibited.

THE University of Alberta is preparing to make extensive additions to its buildings and amenities according to a local correspondent An estimate of requisitions has been made amounting to $750,000 to be employed in furnishing more class room and laboratory accommodation which is urgently needed Although the University is a comparatively new one, the registration of medical students for the present term has reached 180, of whom 72 constitute the freshman class

MEDICAL GOLF CHAMPIONSHIP —The 1920 Medical Golfing Society Tournament will be held on Thursday, June 24th, at Northwood, Middlesex by kind permission of the Northwood Golf Club The *Medical Golf Championship Cup*, presented by THE LANCET in 1914, will be held by the player on the Medical Register who makes the best scratch return v Bogey, this competition is a regular feature at the annual meeting of the Medical Golfing Society Any one on the Medical or Dental Register can join the society by payment of the annual subscription (5s), which includes entrance to the tournament Full particulars of the tournament with form of entry, can be obtained from L Eliot Creasy, hon secretary and treasurer, 36 Weymouth street, London, W 1 (T 904, Paddington)

A ONE SEATER FOR THE DISABLED —A demonstration of motor cycles and other vehicles adapted for the use of disabled persons is to be held on June 12th in the Inner Circle, Regent's Park London, N W One of the designs is described as consisting of a side car body on four wheels driven by electricity and made in different varieties, controllable entirely by hand, entirely by foot, or by both to suit the special case It is said to be capable of running for 35 miles without re charging at a maximum speed of 15 miles per hour, while the cost of a full battery charge is only 2s If the price is not prohibitive this machine should prove popular among the disabled, as it is stated to be light in weight and simple to run

ULSTER MEDICAL SOCIETY —At the annual meeting of this society held on May 27th at the Medical Institute, Belfast, with Mr Andrew Fullerton the President, in the chair, a report was submitted showing that, beside the honorary Fellows, there was an increase in ordinary Fellows and Members the total Fellows being 123 and Members 87—210 in all Financially there was a deficit, and a special committee was appointed to look into the matter after various suggestions—such as efforts to get more doctors to join the society, an increase of subscription, or a decrease of expenditure—had been brought forward The following office bearers for session 1920–21 were elected —

President *Dr Thomas Houston* Ex President Mr Andrew Fullerton Vice Presidents Dr Samuel Agnew (Lurgan) and Dr J E MacIlwaine Honorary Treasurer Dr S I Turkington Honorary Secretary Dr W W D Thomson Honorary Librarian *Dr W L Storey Honorary Editorial Secretary Dr R Marshall* Council Dr C G Lowry Mr Howard Stevenson Dr S T Irwin Dr V G L Fielden Mr W Burns and Dr Boyd Campbell

INCREASE OF PROSTITUTION AND VENEREAL DISEASES IN VIENNA —Our Vienna correspondent writes An energetic but apparently futile fight is being organised against one of the chief menaces to public health—the increase of prostitution, as manifested by the results of the frequent raids of the police on certain hotels and inns The war caused in all large cities a severe relaxation of sexual morals, but nowhere in such a degree as in Vienna The general financial collapse tends to make things worse still as poverty is very often the cause of the first stumbling from the road of respectability, which soon is followed by a true downfall The subject was not considered a fit one for public discussion until a few years ago, but the great danger involved in the extension of venereal disease has necessitated its ventilation a hopeful battle cannot be fought without information and explanation to the masses The daily press brings alarming numbers and facts, which relate to all classes of the population Whilst formerly the chief sources of secret or open prostitutes were servant girls out of work, waitresses or factory girls, now a large percentage are recruited from clerks, typists daughters of respectable families or even wives of the poorly paid clerks or civil servants In 1919 over 7000 females, of whom 2700 were diseased were arrested for "illegal" prostitution 2400 were dealt with by a special department of the Board of Health 800 of these were between 18 and 21 years of age and 42 per cent were diseased 1392 were under 18 years old with 50 per cent infected In the first quarter of 1920 the same Board examined 800 cases with 40 per cent disease, 90 girls were between 14 and 18 years old with 60 per cent of disease These figures show that the increase of venereal disease is a real danger and cannot be dealt with except by up to-date measures It is futile to search for the infected girls in the inns and hostelries, and lock them up or bring them for compulsory treatment to hospitals whilst the men are left alone The necessity of coercive measures against men found infected on such occasions is becoming more and more appreciated The sanitary police service in Austria is demanding a new law by which it would have power to subject to effective medical treatment all persons found ill from sexual disease and behaving in a way that favours transmission of the illness Naturally such a law would mean severe restriction of individual liberty, but it appears to be the only policy to adopt The transmission of disease by infected men is at least as dangerous, and as likely, as by women and must be treated on the same principles as, for instance, cases of scarlet fever or diphtheria, which are at once made innocuous by separation and hospitalisation The new regulations will be issued shortly

MEDICAL MAGISTRATE —Mr Charles Edwards has been placed on the commission of the peace for the borough of Bridport (Dorset)

PRESENTATION TO A MEDICAL MAN.—Dr Arthur Napper, of Cranleigh Surrey, was last week presented with an armchair and a cheque for £750 on his retirement after 46 years of public life

FLORENCE NIGHTINGALE MEDAL —This medal was instituted by the International Red Cross Committee in 1912 in memory of the work of Miss Florence Nightingale, to be distributed annually to six trained nurses who in the opinion of the Committee, have rendered exceptional service in connexion with nursing During the war no distribution was made but shortly after the signing of Peace it was decided to award 50 of these medals and all National Red Cross Societies were requested to submit recommendations for consideration by the Committee Forty two medals have been awarded and amongst the recipients are included the following whose names were submitted by the British Red Cross Society —

Mrs John Lambert of the Royal Naval Nursing Reserve for services in 1915 and 1916 especially on the Hospital Ship *Reva* at Gallipoli

Miss Beatrice Isabel Jones R R C C B E Matron Q A I M N S for services in Mesopotamia since 1916

Miss Gladys Laura White (Sister) B R C S for service 1915 to 1918 especially at No 9 B R C S Hospital at St Omer (No 36 Casualty Clearing Station)

Miss Kate Maxey R R C M M Sister T F Nursing Service for services from 1914 to 1918 especially at No 58 Casualty Clearing Station

Miss Gertrude Mary Wilton Smith Q A I M N S for services as Sister in Charge of Anglo-French Hospital Train No 7 and No 3 Casualty Clearing Station France

Miss Margaret Clotilde Macdonald R R C Matron in Chief of the Canadian Army Nursing Service

Miss Lucy Minchin Nursing Sister of the British Army in India and Mesopotamia

Miss Hester Maclean R R C Matron in Chief New Zealand Army Nursing Service

Mrs F R Creagh O B E R R C Matron in-Chief South African Military Nursing Service

THE LATE DR R EDWARDS —The death has occurred at Carlisle of Dr Robert Edwards following influenza and pneumonia Dr Edwards graduated at Edinburgh University in 1907, and his first appointment was that of house surgeon at the Cumberland Infirmary at Carlisle Here he remained a year and then became successively a house surgeon at the Great Ormond street Hospital for Sick Children London and a resident surgeon at the Royal Sea Bathing Hospital at Margate Seven or eight years ago he began to practise at Carlisle, where he soon became popular Soon after the war began he became acting assistant surgeon at the Cumberland Infirmary where he had previously been placed in charge of the X ray and electrical departments He then joined the army and went abroad but was sent back to England owing to ill health and for some time served under Sir Robert Jones at the Orthopaedic Hospital at Liverpool When later he returned to Carlisle he was appointed surgeon with the rank of major at the Fusehill Military Hospital and gradually resumed his private practice Dr Edwards had attained considerable skill as a surgeon and was specially noted for his abdominal work During and since the war he had specialised more particularly in orthopaedic surgery At the Gretna railway disaster in 1915 Dr Edwards rendered invaluable service repeatedly inserting himself under burning coaches to liberate and attend to the injured in spite of cries of warning from the railway officials who expected a gas explosion any minute In order to release two soldiers pinned beneath a coach and in danger of being burnt alive he amputated both legs of one man and one leg of the other He thus saved the life of one of them the other dying from shock When Dr Edwards himself arrived at the Cumberland Infirmary his coat had been burnt off his back The news of his death at the early age of 35 has been received with great regret and much sympathy is felt with the widow and two young children who survive him

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Imperial War Museum and Great Victory Exhibition.—The opening ceremony of the above exhibition will be held at the Crystal Palace on Wednesday, June 9th, at 11.15 A.M., when the King will preside. We learn that the war exhibits are of a most interesting and varied character, and should occupy the visitor's attention for some time. Medical men will be attracted, amongst other sections, to the Naval Medical Section, organised by Surgeon-Commander M. H. Knapp, R.N. Altogether the exhibition promises to be a great national event.

A List of Special Schools.—The Board of Education has just issued a list of special schools for blind, deaf, and defective children in England and Wales, with a note as to the amount of accommodation and average attendance. As this list is intended solely for official use the schools are entered under the county in which they are situated without an indication of the authority responsible for them. It appears that in England 39 day and 19 residential schools are provided for the blind, 29 day and 20 residential for the deaf, 171 day and 20 residential for the mentally defective. Schools for tuberculous and non-tuberculous children are classified together. It is interesting to note that London contains more than one-third of the day schools for blind, deaf, and physically defective children.

A Holiday Course in Tuberculosis.—A holiday course, under the auspices of the Assistance Publique of Paris, will be held from July 19th to 31st, each day at 2 P.M., at the Maritime Hospital at Berck-sur-Mer (Pas-de-Calais). It will consist of 12 lessons on osteo-articular and ganglionic tuberculosis and some elements of practical orthopædics by the following medical men: M. Menard, honorary chief surgeon of the Maritime Hospital; M. Sorrel, chief surgeon; MM. Andrieu and Tridon, assistant surgeons; M. Mozer, chief of the hospital laboratory; M. Parin, chief of the laboratory of radiology of the hospital. The course will comprise the elements of diagnosis furnished by the laboratory and radiology, Pott's disease, coxalgia, tuberculosis of the knee and tarsus, tuberculosis of the shoulder, elbow, and wrist, tuberculous osteitis, non-tuberculous osteitis and chronic osteo-arthritis with their clinical and laboratory diagnoses, chronic adenitis, helio-marine, radiotherapeutic and surgical treatment, rickets and its treatment, deformities and osteo-articular troubles of adolescence, scoliosis and its treatment. The mornings will be devoted to practical demonstrations as follow: Clinical examinations on Mondays, operations and punctures on Tuesdays and Fridays, plasters Wednesdays and Saturdays, laboratory demonstrations Thursdays. The fee for the course is 150 francs (Internes of the Paris hospitals are exempt). Enrolment should be made by letter addressed to Dr. Parin, Hôpital Maritime, Berck-Plage (Pas-de-Calais), France.

East Sussex Hospital.—The governors of the East Sussex Hospital at Hastings have elected Dr. H. Stanley, Mr. J. W. M. King, and Mr. H. Groome as the first honorary life governors in recognition of valuable work in the interests of the institution.

Royal Devon and Exeter Hospital.—As a result of the appeal for £20,000 for the extension of the Royal Devon and Exeter Hospital the sum of £12,622 has been received, and it is hoped that the remaining amount will be shortly subscribed.

Devon and Cornwall Ear and Throat Hospital, Plymouth.—At the annual meeting of the subscribers to this institution held on May 28th it was reported 1014 patients had been treated compared with 760 in 1918. The financial statement showed a deficit of £100. The chairman, the mayor, alluded with regret to the retirement of Mr. C. E. Bean, who had been honorary surgeon to the hospital since its foundation 33 years ago, and paid a tribute to the value of his services.

The late Mr. W. Eager.—Wilson Eager, L.R.C.P., M.R.C.S., L.S.A., died at his residence, Woodbridge, Suffolk, in his seventy-sixth year. The deceased was a son of the late Mr. R. Eager, a surgeon, of Guildford. He was for 27 years medical superintendent of the Suffolk County Asylum, Melton, now known as St. Audry's Mental Hospital. He resigned in 1897, and joined his elder brother at Northwoods Private Asylum, near Bristol; ten years later he retired from active work, and went to live at Woodbridge, Suffolk, where he was highly esteemed. His son, Dr. Richard Eager, is deputy medical superintendent of the Devon Mental Hospital.

British Waterworks Association.—The ninth annual general meeting of this association will be held in the Council Chamber, The Exchange, Nottingham, on Thursday, July 1st. The proceedings include the reading and discussion of interesting papers on water undertakings from both the economic and hygienic point of view, and the members of the association and their friends are invited to visit the filtration plant and pumping stations belonging to the Nottingham corporation. The sources of water-supply in Nottingham are manifold, including the moorland area of the Derwent Valley, the deep wells in sandstone at Bestwood and Boughton, and the artesian boreholes at Burton Joyce. The meeting altogether promises very interesting proceedings.

Maternity Home for Sailors' Wives.—The Central Commtitee of the Navy League has given £30,000 for the establishment of maternity homes for the wives of sailors and Marines at each of the three principal naval ports—Portsmouth, Devonport, and Chatham—£10,000 for each port. In 1917 the women of Canada collected a handsome sum as an expression of their admiration for the British Navy. Of that money £3000 were handed over to the Commander-in-Chief at Portsmouth for maternity purposes. A meeting to inaugurate a scheme for its application was held in the Town Hall, Portsmouth on May 26th, when it was stated that a suitable house in Southsea had been purchased for £4000 and was being equipped as a maternity home. The plans have now received the official approval of the Ministry of Health. The institution of the home has the support of all ranks and ratings in the navy.

Tuberculosis in Aberdeenshire.—Dr. H. J. Rae, the tuberculosis officer for the county of Aberdeen, has completed his fourth annual report. He states that the tuberculosis death-rate for the county of Aberdeen during 1919 was the lowest for six years, the number of cases notified being 342; 242 of these were pulmonary and 100 non-pulmonary or surgical tuberculosis. 248 were notified in the districts and 94 in the burghs—that is, 2·1 per 1000 in the former and 2·3 per 1000 in the latter case. Of the cases notified, 180 were males and 162 females. During the year in the county of Aberdeen 50 soldiers and sailors received treatment in institutions, 78 were treated either at their homes or at the dispensary, and 12 had the use of shelters. The sources of notification were: from general practitioners, 267; from military and naval medical officers, 45; from medical officers of medical and surgical hospitals, 9; from medical officers of health of other areas ("transfers"), 8; from medical officers of asylums, 8; from school medical officers, 3; from tuberculosis medical officers, 2. The report again calls attention to the large number of "box-beds" still in existence, although they are less common than they formerly were, and also to the surprising number of tuberculous persons who, without the knowledge of their doctor, try and use quack medicines, paying perhaps 24*s.* for a bottle the contents of which would probably only cost 9*d.* It is the poorer class of patient who purchase those supposed remedies, and in many cases they stint themselves of the necessaries of life in order to secure a phantom cure. Dr. Rae urges that the composition of those quack remedies should be exposed, and, if possible, their sale prohibited.

THE University of Alberta is preparing to make extensive additions to its buildings and amenities, according to a local correspondent An estimate of requisitions has been made amounting to $750,000, to be employed in furnishing more class room and laboratory accommodation, which is urgently needed Although the University is a comparatively new one, the registration of medical students for the present term has reached 180, of whom 72 constitute the freshman class

MEDICAL GOLF CHAMPIONSHIP —The 1920 Medical Golfing Society Tournament will be held on Thursday, June 24th, at Northwood, Middlesex, by kind permission of the Northwood Golf Club The Medical Golf Championship Cup, presented by THE LANCET in 1914, will be held by the player on the Medical Register who makes the best scratch return v Bogey, this competition is a regular feature at the annual meeting of the Medical Golfing Society Anyone on the Medical or Dental Register can join the society by payment of the annual subscription (5s), which includes entrance to the tournament Full particulars of the *tournament, with form of entry*, can be obtained from L Eliot Creasy, hon secretary and treasurer, 36, Weymouth street, London, W.1 (T 904, Paddington)

A ONE-SEATER FOR THE DISABLED —A demonstration of motor cycles and other vehicles adapted for the use of disabled persons is to be held on June 12th in the Inner Circle, Regent's Park, London, N W One of the designs is described as consisting of a side car body on four wheels, driven by electricity and made in different varieties, controllable entirely by hand, entirely by foot, or by both, to suit the special case It is said to be capable of running for 35 miles without recharging at a maximum speed of 15 miles per hour, while the cost of a full battery charge *is only 2s If the price is not prohibitive this machine* should prove popular among the disabled, as it is stated to be light in weight and simple to run

ULSTER MEDICAL SOCIETY.—At the annual meeting of this society, held on May 27th at the Medical Institute, Belfast, with Mr Andrew Fullerton, the President, in the chair, a report was submitted showing that, beside the honorary Fellows, there was an increase in ordinary Fellows and Members, the total Fellows being 123 and Members 87—210 in all Financially there was a deficit, and a special *committee was appointed to look into the matter after* various suggestions—such as efforts to get more doctors to join the society, an increase of subscription, or a decrease of expenditure—had been brought forward The following office bearers for session 1920-21 were elected —

President Dr Thomas Houston Ex President Mr Andrew Fullerton Vice-Presidents Dr Samuel Agnew (Lurgan) and Dr J E MacIlwaine Honorary Treasurer Dr S I Turkington Honorary Secretary Dr W W D Thomson Honorary Librarian, Dr W L Storey Honorary Editorial Secretary Dr R Marshall Council *Dr C G Lowry Mr Howard Stevenson, Dr S T Irwin,* Dr V G L Fielden Mr W Burns and Dr Boyd Campbell

INCREASE OF PROSTITUTION AND VENEREAL DISEASES IN VIENNA —Our Vienna correspondent writes An energetic but apparently futile fight is being organised against one of the chief menaces to public health—the increase of prostitution, as manifested by the results of the *frequent raids of the police on certain hotels* and inns The war caused in all large cities a severe relaxation of sexual morals, but nowhere in such a degree as in Vienna The general financial collapse tends to make things worse still, as poverty is very often the cause of the first stumbling from the road of respectability, which soon is followed by a true downfall The subject was not considered a fit one for public discussion until a few years ago, but *the great danger involved in the extension of* venereal disease has necessitated its ventilation, a hopeful battle cannot be fought without information and explanation to the masses The daily press brings *alarming* numbers and facts, which relate to all classes of the population Whilst formerly the chief sources of secret or open prostitutes were servant girls out of work, waitresses, or factory girls, now a large percentage are recruited from clerks, typists, *daughters of* respectable families, or even wives of the poorly paid clerks or civil servants In 1919 over 7000 females, of whom 2700 were diseased were arrested for "illegal" prostitution 2400 were dealt with by a special department of the Board of Health, 800 of these were between 18 and 21 years of age, and 42 per cent were diseased 1392 were under 18 years old, with 50 per cent infected In the first quarter of 1920 the same Board examined 800 cases with 40 per cent disease, 90 girls were between 14 and 18 years old, with 60 per cent of disease These figures show that the increase of venereal disease is a real danger and cannot be dealt with except by up to date measures It is futile to search for the infected girls in the inns and hostelries, and lock them up or bring them for compulsory treatment to hospitals, whilst the men are left alone The necessity of coercive measures against men found infected *on such occasions* is becoming more and more appreciated The sanitary police service in Austria is demanding a new law, by which it would have power to subject to effective medical treatment all persons found ill from sexual disease and behaving in a way that favours transmission of the illness Naturally such a law would mean severe restriction of individual liberty, but it appears to be the only policy to adopt The transmission of disease by infected men is at least as dangerous, and as *likely, as* by women, and must be treated on the same principles as, for instance, cases of scarlet fever or diphtheria, which are at once made innocuous by separation and hospitalisation The new regulations will be issued shortly

MEDICAL MAGISTRATE —Mr. Charles Edwards has been placed on the commission of the peace for the borough of Bridport (Dorset)

PRESENTATION TO A MEDICAL MAN.—Dr. Arthur Napper, of Cranleigh, Surrey, was last week presented with an *armchair and a cheque for £750 on* his retirement after 46 years of public life

FLORENCE NIGHTINGALE MEDAL —This medal was instituted by the International Red Cross Committee in 1912 in memory of the work of Miss Florence Nightingale, to be distributed annually to six trained nurses who, in the opinion of the Committee, have rendered exceptional service in connexion with nursing During the war no distribution was made, but shortly after the signing of Peace it was decided to award 50 of these medals, and all National Red Cross Societies were requested to *submit recommendations* for consideration by the Committee Forty two medals have been awarded and amongst the recipients are included the *following, whose names were submitted* by the British Red Cross Society —

Mrs John Lambert of the Royal Naval Nursing Reserve, for services in 1915 and 1916 especially on the Hospital Ship *Rewa* at Gallipoli

Miss Beatrice Isabel Jones R R C C B E, Matron Q A I M N S for services in Mesopotamia since 1916

Miss Gladys Laura White (Sister) B R C S, for service 1915 to 1918 especially at No 9 B R C S Hospital at St Omer (No 36 Casualty Clearing Station)

Miss Kate Maxey, R R C, M M, Sister T F Nursing Service for services from 1914 to 1918, especially at No 58 Casualty Clearing Station

Miss Gertrude Mary Wilton Smith, Q A I M N S, for services as Sister in Charge of Anglo-French Hospital Train No 7 and No 3 Casualty Clearing Station France

Miss Margaret Clotilde Macdonald R R C Matron in Chief of the Canadian Army Nursing Service

Miss Lucy Minchin, Nursing Sister of the British Army in India and Mesopotamia

Miss Hester Maclean, R R C Matron in Chief New Zealand Army Nursing Service

Mrs E R Creagh, O B E, R R C Matron in Chief South African Military Nursing Service

THE LATE DR. R. EDWARDS —The death has occurred at Carlisle of Dr Robert Edwards, *following* influenza and pneumonia Dr Edwards graduated at Edinburgh University in 1907, and his first appointment was that of house surgeon at the Cumberland Infirmary at Carlisle Here he remained a year, and then became successively a house surgeon at the Great Ormond street Hospital for Sick Children, London, and a resident surgeon at the Royal Sea Bathing Hospital at Margate Seven or eight years ago he began to practise at Carlisle, where he soon *became popular* Soon after the war began he became acting assistant surgeon at the *Cumberland Infirmary, where he had previously been placed in charge of the X ray and electrical departments* He then joined the army and went abroad, but was sent back to England owing to ill health, and for some time served under Sir Robert Jones at the Orthopædic Hospital at Liverpool When later he returned to Carlisle he was appointed surgeon, with the rank of major, at the Fusehill Military Hospital, and gradually resumed his private practice Dr Edwards had attained considerable skill as a surgeon, and was specially *noted for his abdominal work During* and since the war he had specialised more particularly in orthopædic surgery At the Gretna railway disaster in 1915 Dr Edwards rendered invaluable service, repeatedly inserting *himself under* burning coaches to liberate and attend to the injured, in spite of cries of warning from the railway officials, who expected a gas explosion any minute In order to release two soldiers pinned beneath a coach and in danger of being *burnt alive he amputated* both legs of one man and one leg of the other He thus saved the life of one of them, the other dying from shock When Dr Edwards himself arrived at the Cumberland *Infirmary* his coat had been burnt off his back The news of his death at the early age of 35 has been received with great regret, and much sympathy is felt with the widow and two young children who survive him

The Services.

THE HONOURS LIST.

THE following appointments to the Most Excellent Order of the British Empire, for services in connexion with the war, are announced:—

K.B.E.—Dr. John O'Conor, Head of the British Hospital in Buenos Ayres.

O.B.E.—Mrs. Constance Muriel Astley Meyer, Civil Surgeon, attached R.A.M.C.

M.B.E.—Dr. Herman Arthur Macdonald, Medical Officer, Alverstoke Auxiliary Hospital, Hampshire.

ROYAL ARMY MEDICAL CORPS.

Major E. V. Aylen relinquishes the temporary rank of Lieutenant-Colonel.

Temp. Major J. J. Abraham relinquishes the acting rank of Lieutenant-Colonel.

Temp. Capt. A. Brown to be acting Lieutenant-Colonel.

Capt. A. S. Cane to be temporary Major whilst specially employed.

The undermentioned relinquish the acting rank of Major: Capts. A. T. J. McCreery (Bt. Major), C. D. K. Seaver, H. G. Trayer, Temp. Capts. H. B. Graham, W. T. Currie, A. G. Gilchrist, R. Massie, A. C. S. Courts, J. H. Peek.

Capt. T. J. Hallinan is seconded for service under the Civil Administration of Mesopotamia.

Lieutenants (temporary Captains) to be Captains: W. M. Cameron, A. G. Harsant, M. StC. Hamilton, A. Rodd.

J. S. F. J. Kerr to be temporary Lieutenant.

Officers relinquishing their commissions:—

Captains granted the rank of Lieutenant-Colonel: C. J. A. Griffin, C. N. Gover, D. C. Barron, E. M. Cowell, G. T. van der Vijver, T. Y. Barkley, A. T. Pitts.

Captains, granted the rank of Major: F. Cook, C. E. H. Gater, G. Dalziel, J. Purdie, A. Glen, W. Barclay, W. C. B. Meyer, O. H. Mavor, M. W. Paterson, C. J. B. Way, B. Goldsmith, C. Nicholson, S. Wickenden, C. Lovell, A. B. Mitchell, J. R. McCurdie, R. L. Newell, K. K. Drury, D. Dougal, A. J. Gilchrist, T. F. Corkhill, V. Wiley, E. Watson-Williams, W. J. Adie, W. Johnson, M. J. B. F. Burke-Kennedy, G. G. Marshall, G. Marshall, J. B. Scott, E. R. Lovell, W. R. Blore, A. L. Shearwood, G. R. Bruce, J. H. Beverland, D. S. Badenoch, A. Wilson, H. R. Friedlander, G. G. Alderson, J. C. Spence, J. Paulley, R. P. Ballard, K. W. Lewis, W. McCombie, W. B. Cathcart, H. G. Crawford, W. B. Postlethwaite, R. P. A. Kirkland, E. C. W. Starling, G. T. Mullally, (Bt. Maj.) R. C. Ozanne, P. J. Gaffikin, A. A. Smalley, T. G. Fleming, J. Swan, E. J. Bradley, W. Murdock, W. B. Foley, J. B. Cavenagh, E. A. Mills, D. G. Stoute, F. Gamm, D. Colombos, A. R. Hill, J. B. Hanna, H. W. H. Holmes, J. A. Stewart, D. McIntyre.

Captains retaining the rank of Captain: C. G. Schurr, H. E. Creswell, H. K. V. Soltau, R. P. S. Mason, W. C. Mackie W. Broughton-Alcock, J. W. McNee, H. E. B. White, J. S. Dockrill, J. L. Perceval, E. S. Mawe, C. McL. West, D. J. Steele, S. D. Lodge, J. J. D. La Touche, F. H. Goss, G. S. Trower, G. C. L. Woodroffe, J. L. Kilbride, J. C. Young, S. K. Young, R. C. B. Ramsay, J. A. W. Cullen, F. L. P. G. Bennett, J. H. Owen, M. J. Graham, F. A. Belam, J. J. B. Edmond, D. M. M. Fraser, D. C. L. Vey, A. Smith, E. A. Dyson, H. A. Fawcett, S. W. Rintoul, H. B. Goulding, A. McM. Paterson, N. A. Martin, F. G. Lescher, E. K. Ryan, H. M. Pope, W. T. Quinlan, H. W. Evans, H. S. Pemberton, J. Le M. Kneebone, J. K. R. Landells, R. O. Eades, W. S. Birch, A. E. H. Reid, A. J. Ewing, R. N. O. Moynan, J. V. L. Grant, T. M. Miller, M. Avent, B. Greillier, C. H. Attenborough, H. J. S. Morton, E. S. Walls, J. P. Mitchell, J. P. Davies, S. W. M. Jones, G. N. Smyth, R. S. Woods, F. A. Bearn, J. W. Craw, G. W. Wood, J. P. Stallard, T. F. Hegarty, B. Murphy, P. W. Ransom, W. S. Haydock, F. R. Kerr, C. Jacobs, G. A. Hodgson, P. Thornton, J. E. Allan, J. Cowan, G. L. Jones, F. Sykes, L. H. W. Williams, W. H, Shephard, F. V. Bevan-Brown, O. D. Child, H. Smith, J. A. Ryle, C. F. Hacker, J. K. J. Haworth, L. H. W. Iredale, G. M. Roberts, J. S. Robinson, G. D. Read, W. A. MacLennan, G. H. C. Mold, J. F. Hill, G. C. Dixon, J. N. McIntosh, G. F. Clifton, E. F. Guy, J. McKerchar, W. A. Elliott, T. B. Heaton, F. H. Kennedy, T. G. Shand, C. Grant, L. A. Lewis, J. S. Pooley, J. Kennedy, C. A. Mason, W. B. Wood, M. McKnight, A. L. Anthony, C. Gamble, H. L. Garson, W. K. Russell, J. H. Stewart, C. C. Waddington, G. W. Watson, W. A. Young, W. W. Phillips, W. M. Dickson, L. B. C. Marksman, T. Sheedy, J. L. McBean, F. M. Barnes, J. G. Bennett, T. P. Inglis, F. C. Lapage, H. M. Williams, F. A. Duffield, F. Sanders, J. W. Wood, G. M. Scott, J. O. Reid, S. W. Lund, P. B. Corbett, J. Lawson, N. B. Graham, R. O. C. Thomson, D. W. J. Andrews, J. G. Hendry, J. S. Armstrong, S. Brown, A. R. Laurie, H. T. Chatfield, A. L. C. Mackenzie, W. W. Blair, T. R. Davies, I. F. Mackenzie, K. P. Brown, H. D. Wright, G. Morris, G. Irving, D. R. Jones, J. N. L. Blamey, C. P. L. Carrier, A. McL. Ferrie, M. Foster, W. N. Greer, I. MacKenzie, J. Milne, C. P. Pemberthy, B. J. Ryrie, J. M. Smellie, W. L. Ingham, C. Rudd, E. W. Fish, H. C. Broadbridge, W. J. Vance, C. W. Dudley, G. S. Davidson, M. Dwyer, G. Lapage, E. B. Alabaster, R. Colley, A. C. Brown, J. W. Dalglish, J. F. Duthie, E. G. S. Hall, A. F. McMillan, R. Rodger, J. B. Steven, R. W. MacDonald, J. A. Buchanan, J. H. Albinson, D. D. Evans, H. S. Moore, R. B. Stewart, R. J. Staley, D. F. Standing, A. H. Craig, G. Ewen, G. J. Key, A. C. MacDonald, A. G. P. Wills, W. O. F. Sinclair, H. J. Wright, G. E. Kidman, J. J. Murphy, E. H. V. Hensley, A. R. Steven, W. A. Malone, A. Johnstone, G. S. Mather, J. Ross, F. B. Macaskie, P. R. E. Kirby, A. C. Dickey, J. P. Bracken, W. Saunderson, T. Wilson, J. D. Dyson, C. E. Bond, J. A. Murray, E. Lipman, D. H. Anthony, J. E. Kitchen, J. B. Hume, W. E. Wilson, T. Crisp, W. Richards, G. K. E. Inman, J. E. Bannen, J. Beveridge, H. D. Brown, W. Donald, T. J. Honeyman, J. MacA. Mackintosh, D. B. Robertson, H. Chadwick, J. Stirling, H. W. Torrance, A. G. Anderson, F. J. C. Johnstone, J. Ratcliffe, J. Sellar, N. N. B. Fleming, R. B. Hawes, C. E. Hopwood, J. R. Banks, J. A. Hill, J. H. Vance, E. Butler, W. Agar, C. Y. Roberts, E. M. L. Morgan, T. P. Williams, P. R. Riggall, G. S. Martin, F. N. Sidebotham, A. R. Balmain, R. F. Jarrett, J. W. G. Steell, R. G. Simpson, T. B. Bailey, L. Cunningham, R. Moser, B. H. Simon, G. S. Lawrence, J. F. C. Braine, G. W. Heckels, E. Newton, S. C. Swinburne, G. S. Wilson, W. Yeoman, G. G. Jack, W. M. Morris, W. B. Lawson, D. Mitchell, H. C. Roberts, F. K. Hayman, G. E. Archer, J. H. E. Annequin, W. C. Craig, G. C. McEwan, R. A. Woodhouse, N. C. L. B. Tweedie, N. S. Tirard, H. Franklin, C. J. Penny, R. W. Lush, L. S. Gathergood, T. L. Heath, F. C. A. Frith, H. D. McIlroy, S. A. T. Ware, A. T. Woodward, E. R. Longstaff, M. C. Joynt, G. A. Harrison, R. Woodside, D. C. Bluett, A. R. Dingley, P. A. Buxton, J. W. Gordon, J. A. Tolmie, A. A. Fitch, J. B. Mudge, H. A. G. Dykes, W. F. Mason, W. G. Verniquet, A. H. Mitchell, F. R. Leblanc, E. A. C. Langton, W. Christopher, R. L. Jones, A. G. Lumsden, V. T. B. Yule, R. Nixon, P. B. Pinkerton, E. Bramley, J. D. Johnson, R. R. Garden, J. Allison, J. L. Hill, J. M. Martin, H. Patlansky, R. B. Smith, W. McElroy, F. W. Hebblethwaite, H. F. Hollis, W. H. Kerr, A. D. C. McGowan, D. W. M. MacKenzie, J. W. Patterson, H. B. Sergeant, F. J. Jack, D. Lennox, S. N. Dykes, A. J. B. Griffin, E. S. Stubbs, H. W. Leatham, C. C. Chesterman, F. O. Taylor, H. W. Featherstone, J. E. Carpenter, P. A. Ashcroft, E. B. Andreae, A. L. Packham, S. Vidot, A. G. E. Wilcock, T. C. Murphy, J. M. Norman, E. W. Bowell, H. J. C. Churchill, W. W. Newton, W. Brown, L. W. Hughes, A. B. Black, R. G. Battersby, J. J. Mulvey, N. S. Bruce, R. McGregor, W. J. Walters, A. Rose-Innes, A. Robertson, L. Jefferson, J. Rowland, J. H. Wiseman, W. H. White, R. N. Burton, L. Gill, H. Gainsborough, W. R. Mathewson, S. T. Alexander, J. C. C. Howe, J. Wilson, J. A. Keen, A. B. MacDougall, W. L. Agnew, C. G. Irwin, J. Irvine, H. E. Charles, H. V. Horsfall, J. H. Parker, N. Pick, C. H. Smith, C. Reid, W. Eidinow, A. B. Platt, W. T. G. Boul, R. D. Aylward, H. M. Holt, N. Kletz, W. W. Brown, R. Mailer, J. H. R. Smith, S. L. Smith, W. A. Weatherhead, R. J. L. Fraser, E. P. Irving, J. Joels, D. S. Mitchell, F. W. Sandeman, H. D. Apergis, A. Y. Milne, H. G. Morris-Jones, H. B. Dodwell, M. Edwards, N. P. R. Galloway, J. G. Allan, F. Bendix, C. M. Titterton, H. B. Renton, F. Jones, A. McL. Pickup, O. C. Carter, G. L. Malcolm-Smith, W. U. D. Longford, J. J. Robertson, A. B. Cocker, J. Michaelson, J. Marshall, J. W. Morris, M. J. Hilton, J. G. McK. Macaulay, G. R. Sharp, E. S. Phillips, W. D. MacKinnon, R. F. C. H. Buchanan, J. B. D. Galbraith, A. Riddell, W. H. Wallace, H. Taylor, C. H. Warner, C. G. Magee, S. M. Riddick, W. B. Buer, J. Thompson, W. H. Rowden, J. L. D. Buxton, F. L. Richard, G. N. Groves, S. Riddiough, I. Liberman, W. M. Kerr, J. F. Twort, W. A. Fraser, W. G. F. Owen-Morris, J. W. C. Fairweather, C. F. J. Carruthers, W. P. Nelson, E. B. Ash, W. E. Le G. Clark, G. W. Coombes, T. Davies, D. V. Halstead, C. F. Rainer, R. B. Britton, B. B. Sharp, D. J. A. Lewis, J. Hope, A. V. Pegge, F. W. M. Lamb, R. M. Humphreys, A. E. Clark-Kennedy, C. B. Cohen, P. F. Bishop, R. B. Green, H. S. Carter, W. N. Goldschmidt, J. H. Tighe, M. Chalmers, A. E. Cochrane, W. S. L. McLeish, J. Nicolson, J. J. Treanor, W. A. Walker, N. E. ff. Kemm, J. Gilmour, J. C. Morris, J. S. Mann, C. W. Haward, W. A. Jackman, W. M. Savery, E. S. Jones, H. P. Gabb, R. W. C. Ball, T. A. Butcher, E. B. Verney, E. S. Rose, E. F. Rabey, E. Miller, G. S. L. Kemp, J. Peter, P. W. Putnam, R. H. Sutherland, D. O. Macdonald, H. A. Hill, M. Jackson, J. C. McGregor, A. C. Paterson, J. N. Gale, G. R. Ross, W. S. Herman, A. Abelson, J. Morrison, R. B. MacGregor, J. B. Potter, N. B. Peacock, E. S. Gawne, H. A. Cochrane, W. A. Coutts, E. M. E. Cumming, D. MacColl, R. J. Peters, J. H. E. Moore, W. A. Jaques, L. J. Schwartz, M. Melvin, J. Lipsey, T. McS. Wilson, C. O. Anderson, S. C. Critchley, C. P. Hines, A. Eidinow, E. E. R. Spurway, G. F. Peters, W. H. Simmons, F. Lyth, G. S. Lewis, L. H. Bartram.

Lieutenants retaining the rank of Lieutenant: G. V. Davies, F. Walton, J. W. Jones, G. V. W. Anderson, H. A. Chodah, A. R. C. McKerrow, W. A. Flynn, E. A. Leak, G. S. Escoffery, G. W. C. Dunlop, R. J. Patchett, W. A. Hewitson, J. M. Macpherson, S. G. Evans, E. A. Clegg, G. R. Baxter, C. C. H. Cuff, J. M. Melvin, D. Maclean, B. W. F. Armitage, G. G. Havers, M. S. Thomson, S. V. Goldhurst, A. S. Strachan, J. P. Kilty, A. P. McLeod, W. H. Palmer, W. A. Freedman, R. Gainsborough, A. St. G. J. McC. Huggett, W. B. Watson.

Temp. Major F. R. Lucas, T.D. (Major, 9th R. Scots, T.F.), relinquishes his temporary commission.

Temp. Lieut.-Col. A. D. Reid relinquishes his temporary commission.

Temp. Major W. T. F. Davies retains the rank of Major.

Temporary Captains granted the rank of Major: A. R. Green, H. H. Elliot, B. H. Woodyat.

Temporary Captains retaining the rank of Captain: F. H. Kitson, W. G. Marsden, J. J. Reynolds, I. W. Jones, M. J. Kelly, J. R. Slack, C. T. Cheatle, T. H. Thomas, T. F. B. Reid, E. G. Saunders, J. T. McCullagh, C. B. Ticehurst, G. A. Back, C. J. H. Aitken, J. Elder, G. M. Coope, F. R. Sturridge.

SPECIAL RESERVE OF OFFICERS.

Captains relinquishing the acting rank of Major: J. A. Hill, D. J. Armour, W. T. Thompson.

TERRITORIAL FORCE.

Major M. Dunning resigns his commission and is granted the rank of Lieutenant-Colonel, with permission to wear the prescribed uniform.

Capt. (acting Major) J. St. A. Titmas relinquishes the acting rank of Major on ceasing to be specially employed.

Capts. J. H. Hunter, J. M. Smith, and W. C. Macaulay to be Majors.

Capt. M. U. Wilson resigns his commission and is granted the rank of Major.

Captains resigning their commissions and retaining the rank of Captain: A. M. Young, T. L. Ashforth, C. R. Woodruff, H. C. H. Bracey, A. W. Hayward, R. B. Reed, J. S. Hopwood.

Capt. J. H. Owens to be acting Major whilst specially employed.

The undermentioned Captains to be Adjutants, School of Instruction: J. R. Hill, Lowland Division; J. H. Barry, 2nd London Division; O. W. McSheehy, 1st London Division; W. H. L. Allott, Highland Division; W. H. O'Riordan, East Lancs Division; J. R. Yourell, North Midland Division; Capt. (Bt. Major) C. S. P. Hamilton, D.S.O., Wessex Division.

1st London Sanitary Company Capts W E Smith and A Romanes resign their commissions and retain the rank of Captain

Home Counties Divisional Sanitary Section Capt A F Tait resigns his commission and retains the rank of Captain

2nd London General Hospital Capts Sir W A Lane and Sir H M Rigby are restored to the establishment

1st Eastern General Hospital *Capt S W Curl resigns his commission* and retains the rank of Captain

2nd Eastern General Hospital *Capt R P Nash is restored to the establishment on ceasing to hold a temporary commission in the* R A M C

TERRITORIAL FORCE RESERVE

Capt G L Bunting resigns his commission and retains the rank of Captain

ROYAL AIR FORCE

Dental Branch —Lieut W P Bole is transferred to the unemployed list

INDIAN MEDICAL SERVICE

Capt G F Graham to be Major

Hon Capt Behram Pestonjee Sabawala to be Honorary Major

Temp Lieut Sachchidananda Hoshan Paul to be temporary Captain

The King has approved *of the retirement of Col F R Ozzard*

Surg Major Ralph Robert Scott who served in the Crimea died at Bath on June 1st aged 88 He qualified in 1853 when he became a licentiate of the Royal College of Surgeons in Ireland subsequently obtaining the Membership of the Royal College of Physicians of Ireland in 1879

Parliamentary Intelligence.

HOUSE OF COMMONS

TUESDAY, JUNE 1ST

Hospital Treatment of Soldiers

Mr CLOUGH asked the Secretary for War how many sick or invalid soldiers who would otherwise by this time have been demobilised were still being retained for hospital treatment at the expense of the State, whether such hospital treatment was now thoroughly adequate, and what was the cost of it as represented in the Estimates for this year — Sir A WILLIAMSON (Financial Secretary to the War Office) replied There are approximately 5000 soldiers in hospital in the United Kingdom who are eligible for demobilisation, and the daily cost is approximately £2500 The answer to the second part of the question is in the affirmative

Three and a Half Million War Pensions

Lieutenant Colonel ASSHETON POWNALL asked the Minister of Pensions whether he could state the number of those receiving pensions arising out of the war in this country and in France, and the number of persons engaged in this country on the administration of such pensions, and the corresponding figure for France —Mr MACPHERSON The number of persons receiving pensions in the United Kingdom in respect of disability or death in the present war is approximately 1,700 000, and, in addition, nearly 1 800 000 wives children, and other persons dependent on pensioners are receiving allowances—thus making the total number of beneficiaries approximately 3 500 000 The precise number of persons receiving similar pensions or allowances in France is not available, but I am informed that the number is in excess of 3 000 000 The number of persons engaged on the administration of pensions in the employ of the Ministry on May 1st was 24 892 It has not been found practicable to ascertain the corresponding figure for France

Major GODFREY PALMER asked the Minister of Pensions what was the present annual cost of war pensions, and whether he could now inform the House of the result of any actuarial or other estimate which had been prepared showing the anticipated increase or decrease of the annual cost of war pensions during the next 30 years —Mr MACPHERSON replied The cost of war pensions administered by the Ministry of Pensions for the financial year 1920-1921 is estimated at £118,211,000 This figure includes the cost of treatment, but excludes administrative expenses I am not aware of any attempt to forecast the future trend of the Pension Bill referred to, and having regard to the provision in the warrants for readjustment of rates in 1923 and annually thereafter according to the cost of living, I very *much doubt* whether any reliable figures could be obtained under present conditions

Site of London University

Sir WILLIAM DAVISON asked the President of the Board of Education what price the Government proposed to pay the Duke of Bedford for the site behind the British Museum which had been offered to the University of London, how many private residences, boarding houses, or hotels were included in the site, what was the estimated number of the population which would be displaced, what arrangements for their rehousing had been made, and whether the Government had considered the desirability of acquiring the site of the Foundling Hospital which was in the immediate vicinity and of approximately the same area, but had the advantage of not being intersected by roads or subject to leases, and would not involve the rendering homeless of many *families but would enable the trustees of the hospital to* remove their children to the country, as they were anxious to do —Mr FISHER replied In view of the fact that the matter is still under negotiation and the purchase is not yet actually completed, I am not in a position to make any statement as to the price proposed to be paid to the Duke of Bedford A full description of the site, including an enumeration of the number of houses on it and the dates of the termination of leases, has already been published As the great majority of the leases do not fall in until 1923 and after that date, no immediate provision for rehousing is necessitated After full consideration of all the relevant circumstances the Government decided that the Foundling Hospital site was less suitable for the purpose than the site behind the British Museum

Sir W DAVISON asked whether the right honourable gentleman was aware that the Senate of the University had already expressed a preference for the Foundling Hospital site as compared with the site behind the British Museum belonging to the Duke of Bedford, and would he inform the House why the Government were endeavouring to force the University to accept a site which was more expensive and less suitable to the University —Mr FISHER I am perfectly aware that many years ago when the London University question was in an entirely different position the Senate of that University came to that conclusion, but the Government has no doubt that as between the two sites the site now selected and offered to the University is preferable, first, because of its proximity to the British Museum the greatest repository of literary study in the world, secondly, because of its proximity to University College, and thirdly, because of its more central position The Government are not attempting to force the University to accept the site They may accept or decline it —Sir J D REES Will the cost in either case fall upon the public funds? Is it absolutely necessary to incur any such charge at the present time?—Mr FISHER It is perfectly true that the cost will fall upon the public funds, but it is offset by the value of the site and buildings at present occupied by London University in the Imperial Institute, and King's College, which will be liberated

Government and Voluntary Hospitals

Mr LEONARD LYLE asked the Minister of Health whether it was proposed to create a new hospital service to which the municipalities must cooperate with the State, and what was the exact policy of the department towards existing voluntary hospitals on the one hand and towards general hospital provision on the other —Dr ADDISON replied It is not intended that the Government should take over voluntary hospitals but I cannot undertake within the limits of a reply to a Parliamentary question to discuss the exact relation of voluntary institutions to the general scheme of public health services —Mr LYLE May I ask whether in view of the financial position of the voluntary hospitals to day the right honourable gentleman will consider the advisability of issuing a statement of policy at an early date?—Dr ADDISON replied We are giving the matter our attention from day to day, and I hope that I shall be able to make a satisfactory statement before long

Appointment of Women Doctors

Mr A T DAVIES asked the Minister of Health the result of his representations to the authorities of Sheffield street Hospital for Women Clare Market, W C 2, with reference to the appointment of women doctors as medical officers and assistant medical officers respectively —Dr ADDISON replied I am in communication with the authorities of the hospital in regard to this matter, but I have not yet received their reply

Administrative Posts at Health Ministry

Mr A T DAVIES asked the Minister of Health how many administrative posts in the Ministry of Health were held by men at a salary of over £500.—Dr ADDISON replied The number of administrative posts, including within this definition posts strictly defined as executive in the Ministry of Health held by men at a salary of over £500 is 103

Welsh Board of Health

Sir J CORY asked the Minister of Health what officers had been appointed to constitute the Welsh Board of Health, and what special functions each was to fulfil —Dr ADDISON replied The Welsh Board of Health is at present constituted as follows Sir Thomas Hughes, Chairman, Dr Llewellyn Williams M C (Medical Member); Mr John Rowland, M V O, C B E (Deputy Controller of Insurance for Wales), Mr A Lloyd Thomas (Housing Commissioner), Mr Percy Watkins (Secretary, Administrative Officer for Public Health and ex officio member of the Board)

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

Chatfield, H. T., M.B., B.Ch., B.A.O. Belfast, has been appointed Tuberculosis Medical Officer by the Plymouth Town Council.

Darbyshire, J., L.R.C.P. & S. Edin., Medical Officer for Woodbury, Aylesbeare, and Farringdon (Devon).

Depree, H. T., Medical Officer and Public Vaccinator for the No. 1 District, Exeter.

Downes, H., M.B., C.M. Edin., Medical Officer of Health for Chard.

Lee, H., M.B. Camb., F.R.C.S. Eng., Specialist Medical Referee under the Workmen's Compensation Act, 1906, for County Court Circuits Nos. 12 and 14, with a view to his being employed in ophthalmic cases.

Southmead Infirmary, Bristol: Nixon, J. A., C.M.G., M.B., B.C. Cantab., F.R.C.P. Lond., Consulting Physician; Watson-Williams, P., M.D. Lond., Honorary Consulting Surgeon in Charge of Ear, Nose, and Throat Department; Davis, O. C. M., D.Sc. Lond., D.Sc., M.B., B.Ch. Bristol, Consulting Physician for Diseases of Children; Kyle, H. G., M.D., B.Ch. Oxford, Consulting Surgeon.

Certifying Surgeons under the Factory and Workshop Acts: Wood, W. V., M.R.C.S., L.R.C.P. Lond. (Yatton); Farmer, M. L. M.B., Ch.B. Liverp. (Burton-on-Trent).

Vacancies.

For further information refer to the advertisement columns.

Aberdeen University.—Lecturer in Anatomy. £400.

Aylesford, Preston Hall.—M.O. £600.

Barnsley County Borough.—M.O.H. £850.

Bath, Winsley Sanatorium.—Sen. Res. M.O. £500.

Battersea Polytechnic, London, S.W.—Lect. and M.O. at Maternity and Child Welfare Centres. £600.

Belgrave Hospital for Children, Clapham-road, S.W.—Hon. Radiographer. 50 gs.

Birmingham, Queen's Hospital.—Three H.P.'s, three H.S.'s, Obstet. and Ophthal. H.S., and Cas. H.S. £90 each.

Bolingbroke Hospital, Wandsworth Common, S.W.—H.S. £150,

Brentwood Mental Hospital, Brentwood, Essex.—Locum Tenens Asst. M.O. £7 7s. per week.

Brighton, Hove and Preston Dispensary.—Res. M.O. £200.

Brighton, New Sussex Hospital for Women and Children, 4–6, Ditchling-road.—Asst. S. and Asst. Anæsth.

Bristol General Hospital.—Cas. H.S. £175.

Bristol Royal Infirmary.—H.S.'s, H.P.'s, Obstet. H.S., Cas. O., Ophthal. H.S., and Dent. H.S.

Bury and District Joint Hospital Board.—Res. Asst. Med. Supt. £450.

Bury St. Edmunds, West Suffolk General Hospital.—H.S. £200.

Cambridge, Addenbrooke's Hospital.—H.P. and H.S. £130 each.

Canterbury, Kent and Canterbury Hospital.—Sen. Res. M.O. £200.

Cardiff City Mental Hospital, Whitchurch, near Cardiff.—Second Asst. M.O. £350.

Central London Ophthalmic Hospital, Judd-street, W.C.—Asst. S.

Central London Throat and Ear Hospital, Gray's Inn-road.—Hon. Asst. Anæsth.

Charing Cross Hospital, Agar-street, W.C.—Surg. Registrar. £150.

Chelsea Infirmary.—Second Asst. M.O. £325.

Chester County Asylum.—Third Asst. M.O. £350.

City of London Hospital for Diseases of the Chest, Victoria Park, E.—Asst. M.O. £150.

Colchester, Essex County Hospital.—H.P. £200.

Colchester, Royal Eastern Counties' Institution for Idiots, Imbeciles, and the Feeble-Minded.—M.O. £350.

Colchester, Severalls Mental Hospital.—Asst. M.O. 7 gs. per week.

Derby, Derbyshire Hospital for Sick Children.—Female Res. M.O. £150.

Doncaster Royal Infirmary and Dispensary.—Asst. H.S. £225.

Dorset County Asylum, near Dorchester.—Sec. Asst. M.O. £380.

Dumfries and Galloway Royal Infirmary.—Res. H.S. and Asst. H.S. £150 and £75.

Essex County Council and Tendring Rural District Council.—Asst. County M.O.H., &c. £600.

Gravesend Hospital.—H.S. £200.

Great Northern Central Hospital, Holloway-road, London, N.—Res. M.O. £250.

Hackney Metropolitan Borough.—M.O.H. £1000.

Halifax Royal Infirmary.—H.S. £200.

Hampstead General and North-West London Hospital, Haverstock Hill, N.W.—H.P., Cas. S.O., Cas. M.O. £150 each.

Holborn and Finsbury Hospital, Archway-road, N.—Sec. Asst. M.O. £300.

Hospital for Sick Children, Great Ormond-street, W.C.—P.

Huddersfield Royal Infirmary. Sen. H.S. £250.

Hull Royal Infirmary.—Sen. H.S. £200. Asst. H.S. £150.

Johannesburg, South African School of Mines, &c.—Professor of Pharm. £1000.

Kent County Mental Hospital, Maidstone.—Jun. Asst. M.O. £300.

Leamington Spa, Warneford, Leamington, and South Warwickshire General Hospital.—Hon. S.

Leeds Public Dispensary.—Res. M.O. £200.

Leicestershire County Council.—Female Asst. Sch. M.O. and Asst. Infant Welfare M.O. £500.

Lindsey County Council.—Female Asst. M.O. £550. Also Asst. Tuberc. O. and Asst. Sch. M.O. £550.

Liverpool, City Hospital, Parkhill, Sanatorium for Tuberculosis.—Asst. Res. M.O. £300.

Liverpool, David Lewis Northern Hospital.—H.P. £150.

London Lock Hospital, 91, Dean-street, Soho, W.—Clin. Assts.

London Temperance Hospital, Hampstead-road, N.W.—Cas. O. £200.

Manchester Children's Hospital, Pendlebury, near Manchester.—Res. M.O. £150.

Manchester, East Lancashire Tuberculosis Colony.—Res. Med. Supt. and Organiser. £700.

Manchester, Monsall Fever Hospital.—Sec. Med. Asst. and Third Med. Asst. £300 each.

Manchester Royal Infirmary.—Asst. Res. Surg. O. £200. Also Second Res. M.O. £100.

Metropolitan Hospital, Kingsland-road, E.—H.P., H.S., Asst. H.P., and Asst. H.S. £100.

Miller General Hospital for South-East London, Greenwich-road, S.E.—Sen. Res. M.O. £350.

Milnathort, Kinross-shire, Glenlomond Sanatorium.—Res. M.O. £600.

Newcastle-upon-Tyne, Hospital for Sick Children.—Jun. Res. M.O. £200.

Newport, Mon., Royal Gwent Hospital.—Two Res. M.O.'s. £200 and £180 respectively.

Northallerton, North Riding of Yorkshire County Council.—Chief Clin. Tuberc. O. £700.

Nottingham Children's Hospital.—Female Res. H.P. £200.

Nottingham City Asylum.—Second Asst. M.O. £400.

Nottingham General Hospital.—H.P. Also Cas. H.S. £200 each.

Nottingham, Notts County Council.—Female Asst. Child Welfare M.O. and Asst. Sch. M.O. £500.

Pietermaritzburg, Natal, Grey's Hospital.—Jun. H.S. £400.

Powick, Worcester County and City Mental Hospital.—Jun. Asst. M.O. £300.

Prince of Wales's General Hospital, Tottenham, N.—Jun. H.P. £120. Also Clin. Assts.

Putney Hospital, Lower Common, Putney, S.W.—Hon. Radiologist.

Reading, Royal Berkshire Hospital.—H.S. £200.

Rochdale Infirmary and Dispensary.—Sen. H.S. £200. Jun. H.S. £125.

Roll of Honour Hospital for Children, 688, Harrow-road, W.—Female Anæsth. £90.

Rotherham Hospital.—Jun. H.S. £150.

Royal Institute of Public Health, 37, Russell Square, W.C.—Lecturer and Demonstrator of Bacteriology. £500.

Royal Veterinary College, Camden Town.—Chair of Anatomy. £600.

Royal Waterloo Hospital for Children and Women.—Jun. Res. M.O. £100.

Ryde, Royal Isle of Wight County Hospital.—Res. M.O. £250.

St. Marylebone Workhouse.—Visiting M.O. £450.

St. Mary's Hospital, Paddington.—Secretary. £800.

Serbia.—S. for Orthopædic Work for Disabled Soldiers.

Sheffield Royal Hospital.—Asst. Cas. O. £150.

Sheffield Royal Infirmary.—H.P. and H.S. £150 each.

Shirlett, near Much Wenlock, King Edward Memorial Sanatorium.—Res. Med. Supt. £450.

Shrewsbury, Royal Salop Infirmary.—H.P. £200.

Staffordshire General Infirmary, Stafford.—H.S. £250.

Storthes Hall Asylum, Kirkburton, near Huddersfield.—Asst. M.O. £400.

Swansea General and Eye Hospital.—H.S. £200.

Truro, Tehidy Sanatorium.—Res. M.O. £300.

University of London, King's College for Women Household and Social Science Department.—Chair of Physiology. £800.

Victoria Hospital for Children, Tite-street, Chelsea, S.W.—Sen. Res. M.O. £250.

West Bromwich and District Hospital.—Res. H.S. £200.

West London Hospital, Hammersmith, W.—H.P. £50. Also Clin. Assts.

Whitehaven and West Cumberland Infirmary.—Res. H.S. £225.

Wolverhampton and Staffordshire General Hospital.—Res. M.O. £200. Also H.S. £200.

The Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Braintree and Johnstone.

Births, Marriages, and Deaths.

BIRTHS.

McDouall.—On May 14th, at Red Bank, Hornsey-lane, Highgate, N., the wife of Dr. J. C. S. McDouall, West African Medical Service, of a son.

Rabagliati.—On May 21st, at Durban, Natal, S. Africa, the wife of A. H. Rabagliati, M.D., F.R.C.S.E., of a son.

Wells.—On May 28th, at 15, Postley-road, Maidstone, the wife (née Hewlett) of G. E. Headlam Wells, Nantonga Estates, Kampala, Uganda, of a son.

MARRIAGES.

Sykes—Preston.—On 1st June, 1920, at Holy Trinity Church, Scarborough, by the Rev. H. Drown, Dr. Frank Sykes, stepson of Dr. Walker and Mrs. Walker, of Batley, to Bessie Colbert, elder daughter of the late Mr. J. T. Preston, Dennistoun, Glasgow, and of Mrs. Preston, of 14, Grosvenor-road, Scarborough. At Home, Garfield House, Otley, Yorkshire, 25th and 26th August.

Engagement.—Graeme Anderson—Hood.—The engagement is announced between Major H. Graeme Anderson, M.B.E., M.D., Ch.B., F.R.C.S., Surgical Consultant to the Royal Air Force, of 75, Harley-street, W., and Gladys, elder daughter of Charles Hood, of Hatch End, Middlesex.

DEATHS.

Morrison.—On May 30th, at Devoran, Esplanade, Sidmouth, George Ernest Morrison, M.D., of Peking, Political Adviser to the Chinese Government.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W
THURSDAY, June 10th —Papers Mr A V Hill and Mr W Hartree, The Thermo elastic Properties of Muscle —Sir James Dobbie and Mr J J Fox The Absorption of Light by Elements in the State of Vapour 1 Selenium and Tellurium, 2 *Mercury, Cadmium, Zinc Phosphorus, Arsenic,* Antimony —Mr H G Cannon Production and Transmission of an Environmental Effect in *Simocephalus Vetulus* (communicated by *Prof E W MacBride*) —Mr E C Grey The Enzymes of B Coli Communis which are Concerned in the Decomposition of Glucose and Mannitol Part IV, The Fermentation of Glucose in the Presence of Formic Acid (communicated by *Prof F G Hopkins*) —Mr L T Hogben Studies on Synapsis II, Parallel Conjugation and the Prophase Complex in Periplaneta with Special Reference to the Premeiotic Telophase (communicated by Prof E W MacBride)

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS

Wednesday, June 9th

OPHTHALMOLOGY (Hon Secretaries—Malcolm Hepburn, W H McMullen) at 8 P M

CLINICAL EVENING

Cases

Mr R C Charsley Case of Tumour of the Lid
Mr A W Ormond Case of von Recklinghausen s Disease
Mr W H McMullen Cyst of the Iris

Members who wish to show cases are requested to send particulars to Mr W H McMullen, 133, Harley street W 1

Annual General Meeting—Election of Officers and Council for 1920-1921, at 9 30 P M

ROYAL SOCIETY OF ARTS, John street, Adelphi, W C
MONDAY, June 7th —8 P M, *Cantor Lecture* —*Dr W Rosenhain* Aluminium and its Alloys

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East
THURSDAY, *June 10th —5 P M*, Croonian Lectures Dr A F Hurst The Psychology of the Special Senses and their Hysterical Disorders (Lecture I)

WEST LONDON POST GRADUATE COLLEGE, West London Hospital, Hammersmith, W
MONDAY, June 7th —2 P M Mr B Harman Eye Department 5 P M, Dr G Stewart Syphilitic Affections of the Nervous System
TUESDAY —12 noon Mr T Gray Demonstration of Fractures, &c 5 P M, Dr R J Reece Small pox
WEDNESDAY —12 noon, Mr Sinclair Abdominal Diagnosis 2 P M, Mr D *Armour* Demonstration of Surgical Cases
THURSDAY —10 30 A M, Dr Simson Gynæcological Demonstration 5 P M, Mr Baldwin Practical Surgery
FRIDAY —10 A M, Dr McDougal *Electrical Department* 5 P M, Mr MacDonald Stricture
SATURDAY —10 A M, Dr A Saunders Medical Diseases of Children 2 P M, Dr *Owen* Medical Out-patients
Daily —10 A M, Ward Visits 2 P M, In patient and Out-patient Clinics and Operations

NORTH EAST LONDON POST GRADUATE COLLEGE, Prince of Wales s *General Hospital, Tottenham, N*
MONDAY, June 7th —2 30 P M, Mr J B Banister Gynæcological
TUESDAY —9 45 A M, Lieut Col R H Elliot Selected Eye Cases and Operations 2 15 P M, *Selected Cases* —Mr Bemans The Normal Protective Mechanisms of the Body against Bacterial Invasion 3 15 P M, Clinical Lecture —Mr C H Hayton Syphilis of the Upper Respiratory Tract 4 30 P M, Lecture Sir Frederick Mott, K.B E The Diagnosis of Functional Paralysis
WEDNESDAY —2 30 P M, Dr W J Oliver Dermatological
THURSDAY —2 30 P M, Mr N Fleming Eye Cases Dr J Metcalfe Radiology
FRIDAY —2.30 P M, Dr C E Sundell Diseases of Children
SATURDAY —3 P M, Mr Carson Selected Surgical Cases
Daily —2 30 P M, Operations Medical and Surgical Clinics, &c

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W C 1

MEDICAL SCHOOL

MONDAY, June 7th —2-3 30 P M, Out-patient Clinic Dr Collier 3.30 P M, Mr Paton Visual Fields
TUESDAY, June 8th —2-3 30 P M, *Out-patient Clinic:* Dr Grainger Stewart 3 30 P M, Dr Greenfield Tissue Reactions to Lesions in the Central Nervous System
WEDNESDAY, June 9th —2 P M, *Mr Sargent Surgical Aspects* of Cerebral Tumour 3 15 P M, Dr Collier Syringomyelia
THURSDAY, June 10th —2-3 30 P M, Out patient Clinic Dr Farquhar Buzzard 3 30 P M, Dr Farquhar Buzzard Encephalitis
FRIDAY, June 11th —2-3.30 P M, Out-patient Clinic Dr Gordon Holmes 3 30 P M *Dr Tooth Tabes Dorsalis*
Fee for Post-Graduate Course £7 7s C M HINDS HOWELL, Dean

HOSPITAL FOR SICK CHILDREN, Great Ormond street W C
Special Post-Graduate Courses in Diseases of Children, illustrated by cases specimens and radiograms
Mr A T Pitts The Pathology, Results, and Treatment of Dental Sepsis in Children (in the Out-patient Department)—
WEDNESDAY June 9th —4 P M, *Lecture IV, The Prevention of* Dental Caries
Dr R Hutchison Disorders of Digestion and Nutrition in Childhood (in the Museum)—
MONDAY, June 7th AND THURSDAY —11 A M Lecture II, Dyspepsia in Infancy Lecture III, Cœliac Disease
Dr T Thompson Diseases of the Central Nervous System in Children (in the Museum)—
MONDAY, June 7th, AND THURSDAY —9 15 A M, Lecture II, Meningitis Lecture III, Cerebral Tumours in Childhood
Dr D N Nabarro Methods and Significance of Pathological Investigations (in the Pathological Laboratory)—
TUESDAY, June 8th, AND FRIDAY —5 P M, Lecture II, Exa*mination of Blood (concluded) —Agglutination Tests* Wassermann Reaction Lecture III, Examination of the Cerebro spinal Fluid
Mr G Waugh *Diagnosis and Treatment* of Common Surgical Disorders in Children (in the Museum)—
TUESDAY, June 8th, AND FRIDAY —5 15 P M, Lecture I Children as Subjects for Surgical Procedures Lecture II, Acute Inflammation of Bone
Mr T Higgins Common Surgical Disorders of the Naso-pharynx and Annexa in Childhood (in the Museum)—
MONDAY, June 7th, AND THURSDAY —5 15 P M, Lecture II, Naso pharyngeal Suppuration Lecture III, Cervical Adenitis

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland street, W
MONDAY, June 7th —5 30 P M, Post Graduate Lecture —Dr Goodall The Pulse in Diagnosis

KING S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON)
A Course of Post-Graduate Lectures on Syphilis is being given by various members of the staff of King s College Hospital during the present year
FRIDAY, June 11th —9 15 P M, Dr S A K Wilson Syphilis in the Nervous System (II)

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S W
MONDAY, June 7th —2 P M, Dr Melville X Ray Department
TUESDAY —2 P M, Dr D Grant Throat Department 2 30 P M, Demonstration —Dr Burrell Cases after Artificial Pneumothorax
WEDNESDAY —10 30 A M, Dr Punch Demonstration of Museum Specimens 2 P M, Dr Gosse Cardiographic Department 2 30 P M, *Demonstration —Dr Melville Artificial Pneumo*thorax X Ray Demonstration
THURSDAY —10 30 A M Dr Burrell Artificial Pneumothorax 2 30 P M, Demonstration —Dr *Hartley* Bronchiectasis
FRIDAY —2 P.M, Dr Melville X Ray Department 2 30 P M, Demonstration —Dr D Grant Throat Cases
SATURDAY —1 P M, Dr Batty Shaw Special Demonstration in the Out-patient Department

ST MARYLEBONE GENERAL DISPENSARY, 77, Welbeck street, Cavendish square, W
Post Graduate Course on Infant and Child Welfare
TUESDAY, June 8th —10 30 A M, Dr E Pritchard Practical Demonstrations on the Management and Feeding of Infants and Young Children—Lecture III, How to Examine an Infant and Keep Records
THURSDAY —3 P M, Lecture IV, Breast Feeding

UNIVERSITY OF LONDON
Advanced Lectures in Physiology to Students of the University and others interested in the subject
A Course of Eight Lectures on the Bio-Chemistry of Sterols will be given in the Physiological Laboratory of the University, South Kensington, S W
TUESDAY, June 8th —5 P M, Lecture IV, Mr J A Gardner

UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE POST GRADUATE LECTURES, at the Sheffield Royal Infirmary
WEDNESDAY, June 9th —4 P M, Prof Connell Lesions of Fingers and Colles s Fracture

MANCHESTER ROYAL INFIRMARY POST GRADUATE CLINIC
TUESDAY, June 8th —4 30 P M, Lecture —Dr G R Murray Examination of the Thyroid Gland and its Functions (*continued*)

MANCHESTER FRENCH HOSPITAL POST GRADUATE LECTURES 24, Acomb-street (behind Whitworth Park)
THURSDAY, June 10th —4 30 P M, Dr W Stirling Some Common Eye Diseases

BOOKS, ETC., RECEIVED.

BAILLIÈRE, TINDALL AND COX, London
Atlas for Electro Diagnosis and Therapeutics By Dr F Miramond de Laroquette Authorised translation by Mary G *Cheetham, with Foreword by Dr Robert Knox Pp 180*

BALE, JOHN, SONS, AND DANIELSSON, London
The Doctor s Manual or Practitioner s Vade Mecum By A H Hart, M S 4th ed, 10s 6*d*
The Industrial Clinic Edited by Prof Edgar L Collis, M D Pp 240 10s 6*d*
A Text-book of Pathology By F Delafield, M D, and T M Prudden, M D 11th ed, revised by F C Wood, M D Pp 1354 63s

FROWDE, HENRY, AND HODDER AND STOUGHTON, London
Operative Surgery By Prof A Thomson, F R C S Edin, and A Miles, F R C S Edin 3rd ed Pp 217 16s

LEWIS H K, AND Co, London
Backwaters of Lethe (Some Anæsthetic Notions) By G A H Barton, M D Pp 151 5s
The Systematic Treatment of Gonorrhœa in the Male By N Lumb late R A M C 2nd ed Pp 123 5s
Public Health Laboratory Work (Chemistry) By H R Kenwood, C M G, Chadwick Professor of Hygiene 7th ed Pp 420 15s

SAUNDERS W B and Co London and Philadelphia
Surgical Shock and the Shockless Operation By Prof George W Crile, M D, and William E Lower, M D Pp 272 21s
Text-book of Physiology By Russell Burton-Opitz M D, Ph D Pp 1185 32s 6*d*
Diseases of the Chest and the Principles of Physical Diagnosis By George William Norris, A B, M D, and H R M Landis, A B, M D Pp 844 35s

Notes, Short Comments, and Answers to Correspondents.

NOTES ON
PSYCHOANALYSIS AND PSYCHOTHERAPY.[1]

BY SIR JAMES CRICHTON-BROWNE, M.D., LL.D., F.R.S.,
LORD CHANCELLOR'S VISITOR IN LUNACY.

PART I.

I WOULD acknowledge first our debt to psychoanalysis for having induced us to take a more psychical and a less material view of insanity, and for having insisted on the importance of tracing it back to its earliest manifestations. The illuminating discoveries of the last 90 years—I date from Marshall Hall—in the structure and functions and pathological changes of the brain and nervous system have concentrated attention, not exclusively but perhaps too much, on the somatic relations of insanity. It is well, therefore, that we should be recalled to the psychical factors in insanity. The pronounced nature of the psychical symptoms in a large majority of the cases brought under our observation in asylums, and their obvious dependence on coarse material changes, may have accustomed us to rest too generally content with these, and to fail to follow up fully in another and much smaller class of cases, clues which might conduct us to the purely functional disorders out of which the insanity has arisen.

Psychoanalysis Not a New Method.

But while gratefully appreciating the impetus given by psychoanalysis to the diagnosis of insanity by experimental methods and to ætiological research, I cannot admit that its methods are novel, or that there has ever been a time when such of them as are not objectionable have not been in use in our asylums. Hypnosis and crystal-gazing, association tests, and free association have certainly not been in vogue, but in every case some effort has been made by repeated skilled interrogation, by confidential discussion, by appeals to the emotions, by the stirring up of memories, by the observation of conduct, and even by the interpretation of dreams (Maudsley suggested that patients should be set to keep noctuaries instead of diaries), to get at the cause of the altered mental mechanism. It is not correct, as has been alleged, that in psychology, up till now, it is the intellectual factors of mental activity that have been almost solely considered, while emotional and instinctive states have been overlooked and neglected. An ample refutation of that will be found in the writings of the phrenologists, of Dugald Stewart, of Thomas Brown, of Alexander Bain, of Laycock, and of a score of others. While in medical psychology delusion has, perhaps, assumed an unduly prominent place owing to its convenience as a fact indicating insanity in all legal documents, states of exaltation and depression, blunted sensibility and perverted feeling, impulses and morbid appetites, obsessions and phobias of all kinds have bulked quite as largely as delusions in case-book reports. It is at what are called subconscious mental states that medical psychologists have stopped short, simply because such subconscious mental states are beyond direct scientific observation, and are matters of inference or speculation. Our knowledge of the existence of subconscious mental states is obtained, as in the case of a simple reflex act, by watching their physical effects. Psychoanalysis does not give access to the unconscious, but it ransacks the memory for its hidden stores and expatiates in supposititions, complexes, and mythical conflicts. The question comes to be whether its explorations are really worth while. Life seems a little too short for psychoanalysis. The examinations are, we are informed by Jung, laborious and often fruitless, and require almost unlimited time. A case is described by Jung in which two hours were expended in extorting from a young woman labouring under dementia præcox that she had seen a man with whom she had fallen in love, and that when a girl of 16 she had met when out walking an elderly idiotic woman whom she had provoked to obscene behaviour, and the result of all this protracted probing was that the patient, who was judged to have suffered from regret and remorse in conflict with religious conversion, "improved considerably." Dr. Stoddart tells us that "not only is the technique of psychoanalysis extremely difficult, requiring years of practice to obtain proficiency therein, but each individual case requires an enormous time. Even in the hands of the great masters of psychoanalysis the shortest cases take an hour a day for three months, and some take an hour a day for three years."

Doubtful Superiority to other Methods.

Onerous and enervating as must be the practice of psychoanalysis and the acquirement of its technique, our asylum medical officers would not grudge the time and toil required for it if it yielded better results than the methods of diagnosis and treatment hitherto in use, but on that point we have no conclusive evidence. There are no trustworthy statistics bearing on it. No doubt a large number of patients suffering from psychoneuroses have recovered rapidly under psychotherapy, and this has been especially notable in patients suffering from war-induced psychoneuroses; but it is to be noted that these cases have for the most part been of a mild description, of emotional origin, and of recent date, and that similar recoveries have taken place without any psychotherapeutical treatment and under other kinds of treatment than the psychotherapeutical; some of the war psychoneuroses came and went, as it were, of their own accord. Many men affected by them have returned to the front after few days at a base hospital and such rough-and-ready psychotherapy as could be there supplied—namely, a little friendly exhortation and good advice—and many who have been sent home have recovered promptly under autotherapy, or the exercise of their own common-sense. Readjustment to reality in such cases has been speedily effected on withdrawal from the poignant situation in which the mental disturbances arose, and a glass of wine has sometimes facilitated the readjustment. One of the ablest advocates of psychoanalysis in this country, Dr. Ernest Jones, has said: "Even if it were possible, I see no reason why psychoanalysis should be undertaken in the majority of cases, for they can be cured in much shorter ways"; and another equally able advocate —Dr. Bernard Hart—has said: "Psychogenic disorders are not only capable of being favourably influenced by suitable psychological methods, but are capable of being unfavourably influenced by these methods when wrongly used." We have, as yet, no reliable information as to the subsequent history of shell-shock cases diagnosed by psychoanalysis and treated by psychotherapeutical procedure. How many have remained well, how many have relapsed, how many have ended in suicide, how many have, by circuitous routes, found their way into asylums? We must wait and see before we can appraise the merit of this much-vaunted modern innovation.

Certain Objections.

Nor is there, I think, any great call for a treatment irksome to those carrying it out, distressing to many patients, sometimes strongly resented, of problematical benefit, and occasionally injurious in its effects. Is not much of this psychoanalytical boring quite superfluous? An elaborate investigation of the skeleton and orthopædic apparatus is not of much assistance in the case of skin disease, and a resurrection of long-buried psychical experiences is unnecessary in a great majority of mental ailments. Reports of psychoanalytical successes sometimes suggest the waste on trivial cases of a great deal of psychological ammunition.

Psychoanalysis in moderation, in connexion with our old and well-tried methods of clinical observation and research may be very useful, but, pushed to an extreme, and finding for all mental troubles a background of incestuous thought, of jealous, masochistic, sadistic, or homosexual emotions, it becomes itself an offensive obsession. Freudism, notwithstanding the diligent efforts made to acclimatise it, will, I feel sure, never take root in this country. Sexual symptoms have never been ignored by British alienists; but they must not be invented as they are when the libido is lugged in at every turn of thought. Psychoanalysis is itself a conflict of complexes, for I find amongst its adherents divergences in theory and practice that are irreconcilable. The psychoanalysts ignore altogether the finalistic ideals which are far more dominating and characteristic than the basic instincts amongst which they burrow. The instinct of self-preservation is, of course, primary, because without it there could be no other, but it is only in proportion as it is linked up with the sentiment of other preservation or altruism that civilisation has advanced. We presume in a man all the ordinary human instincts, propensities, emotions, in varying amount and individual combination, but as long as they lie latent we know nothing about them; it is only when they express themselves in action that they come into our ken. There is a risk that in exploring for sexual rudiments we may plant the seeds of the very growth for which we are in search, and delusions of a sexual or obscene character are about the most persistent and dangerous encountered in the insane.

The main objection to psychoanalysis as at present presented to us lies, I think, in its over-valuation of mental conflicts and emotional states in the production of the psychoneuroses and of the efficacy of immediate personal legerdemain in their removal. The psychogenic factor has been strongly in evidence in the war, but even where it has appeared to be solely responsible for the nervous or mental breakdown in presumably neuro-potentially sound persons we may depend upon it that the way was almost invariably prepared for it by hereditary predisposition or acquired habit, and that cooperative physical factors, such as fatigue or toxæmia or exhaustion from shortage of food or loss of sleep have also been at work The psychoneurosis, however set up, had an anatomical substratum, however slight or transient, for we must always bear in mind that complete mental and neural parallelism upon which Hughlings Jackson so strongly insisted The psychoneuroses are most conveniently explained in terms of psychology, are sometimes more accessible on the psychical side, and disappear under psychical treatment, but they can also be pictured as diverted nerve currents, can be thus approached, and pass away under treatment that restores nerve tone In most of the cases in which psychical treatment has availed there have been coincident with it changes in physical surroundings, diet, drugs, &c , that have, perhaps, had some share in the favourable issue Without in any way depreciating psychical treatment, I would say that, notwithstanding all the disclosures of psychoanalysis, the alienist physician will still be right in each case in regarding the physical ætiology as of primary importance The purest of the psychoneuroses are apt to set up a recurrent habit, and, if unrelieved, to run on into structural degenerations that are beyond the reach of psychical medication

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[1] Being an overflow from the Maudsley Lecture delivered before the Medico-Psychological Association of Great Britain and Ireland on May 20th, 1920.

Psychic and Physical Factors in the Causation of Insanity

Psychogenesis is patent enough Who has not witnessed the profound depression induced by a great sorrow, or the joyous excitement that has followed on a stroke of good fortune, and what medical man has not occasionally seen the undue prolongation of these and their intensification into mental disorder? With the general public psychogenesis holds the most prominent place in the ætiology of insanity The relatives of the insane constantly ascribe their illness to some particular worry or distress, even when the disease is general paralysis or of obviously organic origin, and medical men have certainly never overlooked psychogenesis or the enthymic causes of insanity arising from impressive or exhausting thought, feeling, or emotion But the clearest demonstration of a psychogenetic starting point and of a connexion between it and the psychical symptoms in a case of mental disease should never render unnecessary a thorough somatico analysis The bodily conditions associated with the mental failure should be closely investigated, for amongst them may be found the key to recovery. Intestinal stasis and putrefactive changes in the alimentary tract with the absorption of toxins from the mucosa are often responsible for hypochondriasis, which may merge, in those of neurotic temperament, in melancholia, if suitable treatment is not resorted to No one can peruse the treatises on insanity of the first half of the last century without remarking that the physicians of the period did get wonderfully good results in certain cases by purgation. Pardo has shown, I think, conclusively that neurasthenia and some mental disorders occur in direct association with indoxyluria and disappear when the elimination of indoxyl is reduced from 10 to 20 per cent above normal to zero I have lately had an opportunity of seeing the notes of some cases under the care of Dr B. H Shaw at the Stafford County Asylum, in which attacks of delirium, confusional insanity, and melancholia, synchronising with acetonuria, yielded rapidly to an alkaline treatment The toxins formed in the cerebro spinal neurons subjected to stress—cholin, phosphoric acid, and particularly neurin—are highly poisonous substances, and upset mental equilibrium They excite the thyroid to supra normal activity, and the thyroid hormone, when produced in excess, breaks down fatty bodies in nerve and brain cells, thus accounting for many morbid, nervous, and mental phenomena As Sir Frederick Mott has pointed out, it is probable that changes in the secretions of the thyroid and other ductless glands, causing a disturbance in the hormone balance, may not only predispose to mental instability, but actually induce it It is probable also that disturbances in the sympathetic and autonomic nervous system are signalised by psychical disorders Incipient tuberculosis and the sequelæ of typhoid fever and of dysentery are often provocative of mental disease I am under the impression that in many cases of the psychoneuroses a study of cutaneous hyperæsthesia might have been even more instructive than psychoanalysis

Suggestion in Therapeutics

It will not be maintained that in cases of the kinds just mentioned, in which an adequate physical factor is at work, much benefit, pending its removal, could be derived from the most assiduous use of suggestion, persuasion, or re-education The physical conflicts must be stopped before the mental ones can be assuaged Attempts at the psychical dislodgment of the disorder will be futile until its physical foundation is removed Of course, psychical remedies should never be neglected They are as old as the hills Job's comforters tried them on, but the danger is that the use of the principal remedies in the psychoanalytical pharmacopœia are very apt to be divorced from medical guidance and control, and to be exploited empirically In psychoanalysis the cross examination that is to elicit a man's past transgressions might be more adroitly conducted by a barrister than a medical man, and in psychotherapy persuasion might be more persuasively urged by a clergyman versed in scruples of conscience and dialectics than by a man trained in the dissecting room and bacteriological laboratory That potent agent suggestion, of the sway of which every notorious public event affords examples, and on which the psychoanalyst largely relies, is the mainstay of the quack whose advertised triumphs are not all fictitious; very salutary effects are exerted by his confident predictions and startling examples, and I have no doubt that his grateful patients who are not frauds are chiefly neurotic subjects The same is true, to some extent, of Christian Science, and of Lourdes, which has been the citadel of suggestion in our times Extreme susceptibility to suggestion and to hypnosis implies a lowering of resistance in the highest nerve centres and an enfeeblement of the will, while in the healthy and well balanced man the range of suggestion is strictly limited

> O! who can hold a fire in his hand,
> By thinking on the frosty Caucasus?
> Or cloy the hungry edge of appetite
> By bare imagination of a feast?
> Or wallow naked in November snow
> By thinking on fantastic summer heat?

But the high grade neurotic subject, the fakir or the devotee, can do all these things, or thinks he can, and the mildly mentally afflicted can sometimes, by suggestion, be beguiled out of their fantasies and back into rationality The strong man is reasonably suggestible, but the hysterical girl responds to every hint

(*To be continued*)

FAMINE RELIEF IN THE UNITED PROVINCES OF AGRA AND OUDH, 1918-19

THE marked deficiency of rain throughout the United Provinces of Agra and Oudh during 1918 had the natural result of diminishing the yield of food crops, only 60 per cent of the early and 40 per cent of the late rice crops were obtained compared with the average, maize yielded only 55 per cent and millet only 40 per cent The spring yield in 1919 was only 61 per cent of the average To complicate matters from the health point of view there was not only a general disturbance of economic conditions on account of the war, but, in addition, a disastrous epidemic of influenza, which carried off a large number of able bodied labourers and left many dependents without means of livelihood The Lieutenant Governor, Sir P Harcourt Butler, took a bold course, and decided that the policy to be followed should be one of liberal suspensions and remissions of revenue, combined with some relief to those who had been left destitute A sum of no less than 200 *lakhs* of rupees (say £1,333,000) was given in advances for cattle, fodder, well construction, in aid of the sugar cane crop, &c Moreover, large remissions of revenue were granted, or its collection suspended Mr Percy Harrison was appointed Famine Commissioner The Famine Code, embodying the accumulated experience of many previous similar visitations, was found to be an almost complete guide to the necessary operations In this famine, in accordance with previous experience—

> "It has been proved beyond any question whatsoever that the testing of the necessity for relief is absolutely essential There is no matter in which the idiosyncrasy of individual officers requires to be so closely checked as in the matter of the existence or otherwise of distress requiring relief "

In the hill districts of Garhwal, where there was a large demand on the local stocks of food by pilgrims visiting the shrines of Kedarnath and Badrinath, the main difficulty was how to transport food in sufficient quantities to the remote and inaccessible homes of the people who required it Grain depôts were established under official management, and the pilgrim route was closed

Measures of Utility

In regard to the United Provinces generally various measures of real utility, such as the reclamation of waste lands in Etawah and construction of water storage works in Bundelkhand, were undertaken with success; and in very many instances native gentlemen gave large sums in charitable relief An important part of the work consisted in the procuring of a supply of fodder for cattle in the areas affected Private traders were encouraged by the grant of concessions on rail transport rates, and about double the quantity so obtained was supplied by official arrangements through the Forest Department from the State forests in Dehra Dun, the Tarai, and elsewhere The experience gained on this occasion will probably result in precautionary arrangements being made for the speedy supply of fodder in any subsequent occurrence of famine in these provinces As districts maintain programmes of works to be carried out on the occurrence of a famine, so might the Forest Department maintain programmes for famine fodder operations, with depôts, railway siding accommodation, &c., always available. Power presses for fodder are recommended, as by their use only half the amount of rolling stock would be required for transporting a given quantity of hay. All necessary equipment of this sort should be regarded as an insurance against famine.

This narrative of the measures adopted for the relief of famine by Mr. J. D. Elliott, Secretary to Government, concludes with an acknowledgment of the services of numerous private individuals in the administration of district relief funds and of their public-spirited assistance in many ways. We may be allowed to add that it also affords abundant evidence of the practical genius of our countrymen in dealing with conditions of the greatest difficulty and emergency that can be imagined; and that if any justification for the British Raj in India were necessary, it would be found in ample measure in the plain "Narrative and Results of the Measures Adopted for the Relief of Famine during the Years 1918 and 1919" in the United Provinces of Agra and Oudh.

"QUEEN ELIZABETHES ACHADEMY."

A PAPER published in the *Bristol Medico-Chirurgical Journal* of March, 1920, by Mr. L. M. Griffiths deals with a little known tract entitled "Queen Elizabethes Achademy," the subject of which is "The erection of an Achademy in London for educacion of her Maiestes Wardes, and others the youth of nobility and gentlemen." The author was Sir Humphrey Gilbert, and he was apparently led to his proposal by the very poor opinion which he held of the Universities; "At this present, the estate of gentlemen cannot well traine up their children within this Realme but eyther in Oxford or Cambridge whereof this ensueth; first being there they vtterly lose their tymes yf they doe not follow learning only. For there is no other gentlemanlike qualitie to be attained. Also by the evill example of suche, those which would apply their studies are drawen to licentiousnes and Idleness; and therefore it were every way better that they were in any other place than theare." Gilbert's Achademy provided for instruction in subjects which practically coincide with The Seven Arts, together with Physic, Surgery, Law, Divinity, Cosmography, Heraldry, and foreign languages. Moreover, the scholars were taught the use of "the great horse." Physic and Surgery were to be taught in English, not in Latin, and it is interesting to note that as regards the library Gilbert anticipated the rule which holds at the Bodleian and the British Museum. "All Printers in England shall be for ever charged to deliver into the Liberary of the Achademy, at their owne Charges, one copy, well bownde, of euery booke, proclamcion, or pamflette, that they shall print." Gilbert's Achademy never materialised, but in the year 1700 an attempt was made by one Mr. Lewis Maydwell to obtain a Parliamentary grant to enable him to run an Academy for teaching "the Riding of the Great Horse and some other gentil Accomplishments" which he claimed were not to be had in the Universities. Mr. Maydwell's scheme was severely criticised by the then Savilian Professor of Geometry at Oxford, Dr. John Wallis, who in a most amusing letter stated that everything necessary for a gentleman was taught, or could be taught, at Oxford, and hinting, not obscurely, that Mr. Maydwell's scheme was only designed to make himself rich. It cannot be said that physical exercise is now neglected at the Universities, though it is not yet part of the University Course. Dancing, which is undoubtedly a most useful exercise, used to be part of the curriculum at Eton, the last boy to learn it, if we remember right, being the late Dr. Pusey.

ANALYTICAL NOTES ON DRUG SUPPLIES, 1914–1919.

THERE are some interesting disclosures in "Evans's Analytical Notes," covering the period 1914 to 1919, issued last week in pamphlet form by Messrs. Evans Sons Lescher and Webb, of 56, Hanover-street, Liverpool. These useful notes were published annually prior to the war, but the issue was discontinued in 1914. Amongst some of the items in this recent number calling for notice in regard to the purity of drugs are the following. Acetyl salicylic acid of English manufacture is reported to be equal in quality to anything that was produced abroad. Many samples of amyl nitrite failed to comply with the requirement of the B.P. that 90 per cent. should distil below 100° C. Arsenical impurity was found in samples of commercial borax and boric acid. Chloroform has under the tests made given uniformly satisfactory results according to B.P. requirements. Arsenic and lead were of constant occurrence in samples of cream of tartar. Acetone was found in samples of ether. The viscosity of paraffin liquidum was found to vary in the specimens examined from 71° to 300° (Redwood). The need for official standardisation on this point is obvious, as we indicated in a special inquiry upon the subject (THE LANCET, Oct. 2nd and 16th, 1915). Boric acid and sugar were found in veronal. Samples of potassium iodide contained a considerable quantity of potassium chloride. Many other examples could be quoted, but the foregoing show generally the interest of the compilation in addition to which some improved methods in regard to analytical procedure are described.

FIRST-AID GUIDES.

Colonel R. J. Blackham, Assistant Director of Medical Services at Chatham, and the author of several well-known manuals of first-aid and nursing, has compiled an excellent series of pocket guides to first-aid treatment, which are being published by Messrs. Dale, Reynolds and Co., 46, Cannon-street, London, price 6*d*. each. Two of these, No. 2 Hæmorrhage, and No. 3 Insensibility, lie before us, the form being a four-page card measuring 3½ in. by 5½ in. The instructions are printed in tabular form and in non-technical language, those in regard to hæmorrhage giving the signs of bleeding, the general first-aid treatment, and the methods of applying pressure, while those for insensibility set out its various kinds, the methods of recognising them, and their treatment. These cards should prove helpful to both instructor and pupil; to the first as a convenient form of lecture notes, and to the second as summaries of first-aid teaching which can be carried in the pocket and consulted at odd moments. In factories where the full-time doctor is not employed the distribution of such cards among the workers might be the means of saving life; and in any case it would help the patient till the arrival of the doctor.

THE ART OF PRACTICE.

WE have received a pamphlet entitled "The Management of Patients: Success in Practice," wherein an attempt is made to assess the relative importance of manner and professional skill in the successful treatment of private patients. The conclusions reached are greatly to the disadvantage of skill when divorced from other factors. The pamphlet is issued by the Post-Graduate Society, Thanet House, Temple Bar. There is attached an application form for a "course," in the form of a book, on tactics and therapeutics, which is compiled by an unnamed authority.

Harrovian will have to take legal advice on the whole case. As he sets it out, the Act would seem to apply.

Communications, Letters, &c., to the Editor have been received from—

A.—Austin Motor Co., Birmingham; Mr. A. S. Anderson, Northampton; Dr. J. M. Ahern, Rochester.

B.—Dr. J. S. Bury, Manchester; Prof. W. B. Bell, Liverpool; Dr. A. Blackhall-Morison, Lond.; Dr. S. A. Bonnerjee, Sangrur; Dr. H. C. Bazett, Oxford; Dr. A. Bygott, Bury St. Edmunds; British Red Cross Society, Lond.; Prof. Sir J. W. Byers, Belfast; Dr. A. Balfour, Lond.; Mr. W. G. Ball, Lond.

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Goulstonian Lectures

ON

THE PRINCIPLES OF MEDICAL SCIENCE AS APPLIED TO MILITARY AVIATION.

Delivered before the Royal College of Physicians of London.

BY J. L. BIRLEY, C.B.E., M.B., B.CH. OXON., F.R.C.P. LOND.

LECTURE III.*—WAR FLYING AT HIGH ALTITUDES *(continued)*.

Delivered on March 16th, 1920.

MR. PRESIDENT AND FELLOWS,—There still remain to be considered one or two points in connexion with high altitudes before we can pass on to the main subject of this lecture, the importance of the ear in aviation.

PHYSICAL FITNESS AND HIGH FLYING.

The bodily reactions which high flying entails are comparable in some respects to those with which we are familiar during muscular exertion at sea-level, their main object being to provide oxygen in quantities sufficient for the needs of the body. It was certainly our experience to find that those individuals who had long been accustomed to take vigorous exercise resisted the effects of altitude better than their more sedentary companions.

It can also be readily understood how utterly unsuited for high altitude work is the individual whose central nervous control has either never been properly developed or has been weakened as the result of strain and fatigue. The shallow breather whose ventilation is both inadequate and uneven[1] is already in an anoxæmic condition by reason of his breathing, while the individual whose pulse and arterial pressure are abnormally sensitive to exertion or excitement has no reserves to fall back upon.[2] The subject of the "effort syndrome" is, in fact, in much the same physical state in the hospital ward as is the healthy pilot at 20,000 ft.

THE CLINICAL EXAMINATION OF CANDIDATES.

Brief attention may here be made to the medical examination of candidates for the flying service, since one of the most important questions which the examiner has to decide is whether the candidate is fit for high flying. I have stated in a previous lecture that in my opinion it was inevitable that the standards devised by the Candidates Examination Board were productive of more criticism than those which they replaced. My reasons for thinking so are that something was being attempted which had not seriously been attempted before—viz., to standardise the normal individual, or even to pick out the superman. It would seem that we have no settled conception of what we mean by a normal individual, or else that the range of normality is so great as to permit of us having different conceptions.

It was found as a matter of experience that those who stood the stress of service well conformed to the standards of circulatory and respiratory fitness laid down by Flack.[3] Their pulse-rates tended to be comparatively slow at rest, reacted quickly and effectively to changes of posture and to moderate exercise, and quickly returned to normal after exercise. Similarly the blood pressure showed no excessive response to exercise or emotion. On the respiratory side individuals with high vital capacity, low consumption of air per minute,[4] a slow rate of breathing, power to hold the breath for over a minute, and good expiratory force demonstrated their suitability for work at high altitudes. The ability of an individual to sustain by an expiratory effort a column of mercury at 40 mm. for any length of time, though more difficult to interpret, involving as it does an obstacle to the return of venous blood to the heart, was, nevertheless, correlated with physical fitness and mental resolution. The performance of an individual subjected to these tests was appreciably diminished by anything which lowered his physical health, such as an attack of influenza, scabies, &c. But the condition which more than any other was productive of an inability to pass these standards was that which we have already studied under the name of anxiety neurosis. When, therefore, we make use of these tests we must remember that the subject under examination possesses a cerebral cortex, and we must not be encouraged into talking too glibly about "cardio-vascular debility" and "respiratory weakness."

It has recently been shown[5] that definite relationships exist between vital capacity and body surface, body weight, stem length or sitting height, and chest measurement; and it seems justifiable to hope that the results to be obtained by a wider application of these measurements and of the principles on which they depend will help us to a fuller and clearer understanding of what we mean by a normal individual.

TEMPERATURE.

The cold experienced at high altitudes is very great at all seasons of the year. On a hot day in July, when the thermometer on the ground may be registering 80° F., at 20,000 ft. it is at, or just below, zero, while in January at this height there are often more than 60° of frost.

It is well known that cold increases the O_2 intake and CO_2 output (but not the nitrogenous metabolism) by a reflex stimulation causing shivering and restlessness, and this action is reflected in the inclination to take exercise in cold weather.[6] If, however, all movements are avoided no increase in the respiratory exchange takes place.[7] The flying officer is handicapped in the air by his relative immobility, and the external cold tends to aggravate his anoxæmic condition. Incidentally, when individuals are experimentally subjected to low O_2 pressures they frequently complain of coldness of the extremities.[8] The aim of clothing is, of course, to maintain a high and constant temperature between the body surface and the nearest layer of clothing, and there can be no doubt that the great improvements effected in this connexion during the war largely increased efficiency in the air. Difficulty must always be experienced in protecting the face and hands, the latter because heavy flying gloves have frequently to be discarded temporarily for the purpose of taking photographs, fighting a gun, clearing a jamb, &c.; to touch metal at −30° F. with the unprotected hand must inevitably cause acute frost-bite. This difficulty was in some degree overcome by the wearing of electrically heated gloves. Pilots flying at high altitudes by withdrawing their heads momentarily from the protection afforded by the windscreen often secured in this way a welcome stimulation, the action of the rush of cold air being, no doubt, a reflex one from the skin of the face to the medullary and higher centres.[9]

The Effect of Altitude on the Ear.

Slight but temporary deafness after landing has long been a matter of common knowledge among aviators, and was usually attributed to the noise of the engine. This symptom, however, especially after the introduction of the fast scout machine, began to be frequently associated with discomfort or actual pain in the ear, more often unilateral, and a feeling of unsteadiness, both of which might persist for some hours, while in a few individuals the pain was so great that they had to discontinue flying altogether. It seemed probable that this condition was referable to a difference of air pressure on the two sides of the tympanic membrane. It was shown by Scott[10] that inspection of the ear under these circumstances immediately after landing reveals a fundus bright red owing to engorgement of the vessels in the tympanic membrane, while in extreme cases the membrane is strongly invaginated into the tympanum and closely moulded over the ossicles. These changes are referable to the patency or otherwise of the Eustachian tubes. During ascent the rise of relative pressure in the tympanum is usually sufficient of itself to open the Eustachian tube and so to bring about equalisation of pressure on the two sides of the drum. During descent, on the other hand, especially if rapid; when the excess of pressure is on the outside of the drum equalisation can only be effected by some muscular effort which will stretch the openings of the tubes and allow air to pass up. In the normal individual with patent Eustachian tubes this can be effected by repeated swallowing, a movement which is facilitated by keeping a piece of chewing-gum in the mouth and rendered difficult by the dryness of the throat which results from breathing the cold, dry air at great altitudes with the mouth open. It can also be effected by imitating the first part of the act of yawning, or by repeated auto-inflation of the ear by Valsalva's method. During a steep and prolonged "dive," at a speed of perhaps more than 200 m.p.h., equalisation of pressure may be impracticable. Owing to the [illegible] of the curve of barometric pressure in relation to [illegible] this effect on the ear is greater when descending

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* Lectures I. and II. were published in THE LANCET of May 29th (p. 1147) and June 5th (p. 1205) respectively.

10,000 ft. to ground level than it is from 20,000 to 10,000 ft. In individuals where there is definite Eustachian obstruction, whether due to a cold in the head or to some other cause, a descent of several thousand feet may cause not only pain in the ear on the affected side with pressure sensations in the head and deafness, but hæmorrhage may occur or even actual perforation of the drum. Airmen with large bilateral perforations are, of course, immune to these symptoms.

In cases of unilateral Eustachian obstruction, where an officer may have complained of actual vertigo while flying, and landed with unsteady gait, earache, headache, and nausea, Scott[11] has further observed nystagmus, forced movements, unnatural position of the head, and other disturbances of equilibrium. All these disturbances can be relieved by successful catheterisation of the obstructed tube. The condition is clearly related to differences of air-pressure in the ear on the two sides, with corresponding differences of endolymph pressure, and in consequence a divergence of information from the vestibular receptors of the two sides with resulting disturbances in consciousness. It is further possible that the profound and rapid changes of temperature experienced when flying may aggravate the condition by effecting a modified "caloric test" of unequal intensity on the two sides.

This regulation of pressure in the ear by means of the Eustachian tubes is by far the most important practical point connected with the ear in flying. Its importance, however, has been largely overshadowed in favour of the greater but more hypothetical interest aroused by the consideration of the internal ear as the organ of balance or of motion-sensing.

THE QUESTION OF BALANCE IN THE AIR.

Few who have ever flown can watch the graceful evolutions of a bird on the wing without wonder mingled with envy. Comparison between the bird and the distant aeroplane is irresistible, and knowing that the latter is controlled by a pilot, although we cannot see him, we instinctively ask ourselves, On what aspects of function do the seemingly bird-like qualities of the pilot depend? It has elsewhere[12] been stated that, "in order to preserve the wonderful accuracy necessary for controlling an aeroplane the pilot relies pre-eminently on his ear-balance sense." We must now investigate the correctness or otherwise of this view.

THE ANATOMY OF THE LABYRINTH.[13]

The internal ear consists of an auditory and a vestibular portion; it is only with the latter that we are concerned.

The membranous labyrinth lies slung in its bony counterpart, the osseous labyrinth, from which it is separated by a fluid called perilymph. It consists (*a*) of two membranous sacs, the utricle and saccule, which lie inside that portion of the labyrinth known as the vestibule; and (*b*) of three semicircular canals. These canals are set in the three planes of space; the external or horizontal canal in the horizontal plane, and the two vertical canals in the vertical plane and at right angles to one another. The latter are usually termed the posterior vertical and superior vertical canals, the posterior canal of one side lying in the same plane as the superior canal of the other, and vice versa. Each canal has a large or ampullated and a small extremity, both of them opening into the utricle. The small ends of the two vertical canals, however, coalesce before entering the utricle, which therefore has five openings. The swollen end, or ampulla, of each canal contains the crista acustica or crista ampullaris, an elevated ridge protruding into the lumen of the ampulla crescent-wise and lying at right angles to the axis of the canal. The crista constitutes the nerve end-organ, comprised of hair cells 20μ in length, jutting out into the lumen of the ampulla, which like the other portions of the membranous labyrinth is filled with a fluid called endolymph. The fibres of the vestibular portion of the eighth cranial nerve end in arborisations round the hair-cells of the crista. The crista may be said to divide the canal into two portions, a short sinus portion toward the utricle, and a longer tubal portion comprising the rest of the canal. The utricle and saccule also contain two nerve end-organs, known as the macula of the utricle and the macula of the saccule respectively; these are histologically similar to the crista, except that instead of being raised they are flush with the surface, and the gelatinous membrane, or cupula, which overlies them contains a few small concretions of carbonate of lime, called the otoliths, which are not found in the cupula of the crista acustica.

EXPERIMENTAL PHYSIOLOGY OF THE LABYRINTH.

Flourens (1824–42)[14] was the first to show by experiments, chiefly on pigeons, that destruction of the vestibule and semicircular canals is followed by disturbances, not of hearing but of equilibrium. He further observed that the peculiar pendulum-like movements of the head in pigeons submitted to operation occurred in the plane of the canal transected, and was of opinion that the peculiar relation of the canals in the three planes of space was related in some way to their function. He concluded that—

> "In the semicircular canals there is an agency which restrains and moderates muscular movements; the vertical canals moderate movements backwards and forwards, the external canals moderate movements from right to left, and from left to right."

These brilliant researches made little impression, and it was not until Menière in 1861 described disturbances of equilibrium as a symptom of internal ear lesions that their significance was appreciated.[15] In 1870 Goltz[16] confirmed Flourens' results, while Crum-Brown,[17] Mach,[18] Cyon,[19] Breuer,[20] Ewald,[21] and Lee[22] made further classical contributions to our knowledge of the labyrinth. The interpretations of the results obtained by these different experimenters varied considerably, although the results themselves are fairly concordant. Both Mach and Crum-Brown, as a result of rotation experiments, concluded that man possesses a special sense of rotation, the peripheral sense-organ concerned being the semicircular canals. Breuer amplified this view and looked upon the semicircular canals as the organ for appreciation of rotational movements, while the maculæ of the utricle and saccule appreciate progressive movements. Cyon, again, advocated the view that the semicircular canals constitute the peripheral organ which subserves a sixth sense, the sense of space, on which are projected our additional space conceptions derived from eye, muscle, and skin.

Ewald (1892), a pupil of Goltz, was the first to provide experimental proof of the correctness of the assumption first put forward by Breuer, that the specific stimulus to the hair cells of the crista is afforded by the current of endolymph in the canals. By opening up one canal and connecting it with an air-pressure apparatus he demonstrated in pigeons that the movements of the head and eyes are always in the direction of the endolymph flow and in the plane of the stimulated canal. It is this discovery which has rendered possible the investigation of labyrinthine function in clinical medicine.

Ewald further demonstrated that in the horizontal canal a movement of the endolymph toward the utricle causes a reaction twice as strong as a movement away from it, whereas in the vertical canals the exact opposite is the case. This curious difference between the horizontal and vertical canals has no physical explanation, while its physiological significance is obscure. Ewald's discovery, however, that the strength of the reaction depends on the direction of movement of the endolymph in relation to the ampulla is of considerable physiological importance, since the ampullæ of the two-paired canals which lie in the same plane are so arranged that particles moving in the same direction in the two canals move toward the ampulla of one and away from the ampulla of the other. It therefore follows that for rotation in any given direction and in any given plane the total reaction will be evoked as to two-thirds from one canal and as to one-third from the other (paired) canal. Flow towards the ampulla of the horizontal canal evokes its principal function, flow away from it its subordinate function. "Each horizontal canal," to quote Lee, "stands to the opposite one in the same functional relation as each vertical canal to the one diagonally opposite; in both cases the principal function of the one being of the same *kind* as the subordinate function of the other." The fact of a double function (principal and subordinate) necessitates the assumption of the existence in each crista of two functionally different kinds of nerve-ending, and we must further assume the presence of two different "patterns" of central connexions corresponding to the two kinds of functional discharge.

As regards the more primitive part of the membranous labyrinth, all vertebrates except mammals have three otolith organs on each side—the utricle, saccule, and lagena. These organs bear to one another the same spatial arrangements as the semicircular canals, the macula of the utricle lying in the same plane as the horizontal canal, that of the saccule in the plane of the superior, that of the lagena in the plane of the posterior canal. In mammals the lagena is developed into the auditory cochlea. It is evident that by reason of the structural arrangements of these organs the incidence of the weight of the otoliths on the hair cells of the macula must vary according to the position and movements of the head with reference to the line of gravity. A movement in a straight line will not produce any current in the semicircular canals, since the influence of the inertia in the two halves of each canal will be found to be equal and in opposite directions. But linear movements of the head at their commencement and termination, or changes in the rate at which the head is moving, must cause some alteration *in the incidence of pressure exerted by the otolith on* its subjacent hairs These considerations form the basis of Breuer s hypothesis that the sacs (utricle and saccule) form the static and the canals the dynamic organ of equilibrium It must be remembered, however, as Lee points out, that, with *every movement*—i e , with every *change of dynamical* sensations—a change of statical sensations must also occur

The grosser effects of extensive labyrinthine destructions are well known When all three canals are cut on one or *both sides the animal shows, in addition to weakness and loss of muscular tone, a distressing inability to maintain* a normal attitude not only of its head, but of the whole body Any attempt to move results in violent movements necessitating the wrapping of the animal in bandages to prevent injury Pigeons with only one canal cut recover *completely in a few days*, with two *canals* cut they recover completely, as far as walking is concerned within a month, but exhibit an unwillingness to fly [23] With all six canals cut a pigeon may recover sufficiently to stand, walk, and feed itself, but it remains permanently unable to fly for more *than a few* yards, and then only in a struggling *fashion and a short distance above the ground*

CLINICAL EXAMINATION OF LABYRINTHINE FUNCTION

It is to the Vienna school of otologists and in particular to Barany [21] that we owe the application to clinical medicine of the knowledge gained by the experimental method Given (*a*) the position of the canals, (*b*) the direction of movement of the endolymph, and (*c*) the relation of this movement to the ampulla, we can by *effecting movements* of the endolymph investigate the responses *from* each canal, *remembering* Ewald's law, that the movements of the head and eyes are always in the direction of endolymph flow and in the plane of the stimulated canal

There are three methods by which we can stimulate the semicircular canal system (1) Rotation with sudden deceleration; (2) caloric (hot and cold water or air), and (3) galvanism. Here I propose to confine myself to rotation

Suppose, now, that an individual sitting in a chair, with the *head* 30° *forward* so as to put the two horizontal canals exactly in the horizontal plane, is rotated, the endolymph in the horizontal canals will be affected At first, owing to its inertia, the endolymph will lag behind, as the rotation continues it will catch up, and when rotation is suddenly stopped it will be carried along for a short time by its acquired momentum in the direction of the previous rotation

A *Nystagmus*

Considering first the *ocular phenomena*, the movements of the eyes which actually occur are to and fro movements, consisting of a slow and a rapid component It is the slow component which results *from excitation of* the hair cells of the crista, and occurs therefore in the direction *of the endolymph* flow The quick component is mediated by higher cerebral centres, and is abolished by narcosis [12] Somewhat unfortunately it is the quick component which for clinical purposes is taken as the index *of the direction of* nystagmus

Suppose, then that the individual is rotated with head 30° forward clockwise—i e , from left to right When rotation is suddenly stopped the endolymph will continue to the right, *the slow nystagmus will be to the* right, although clinically the nystagmus will be described as *being to the* left Further, endolymph flowing to the right in the horizontal canals moves away from the ampulla of the right side *and* towards the ampulla of the left Therefore, on deceleration *after rotation* to the right two thirds of the reaction is due to the left canal and one third to the right In other words, the labyrinth on the side opposite the direction of rotation is chiefly responsible for the reaction evoked when the *rotation is stopped* The vertical canals can be stimulated by rotation by placing the head *in* such a position that the two corresponding canals are brought into the *horizontal* plane Interpretation of the reactions after stimulating the vertical canals are more complicated, but the principles are the same—viz , *that the slow* component of the nystagmus is in the same plane and in the same direction as the endolymph flow.

In addition to nystagmus two other phenomena can be evoked by deceleration *after* rotation—namely, vertigo and forced movements

B *Vertigo*

Rotatory vertigo manifests itself in certain definite planes After rotation with the horizontal canals in the horizontal plane the *vertigo is in the horizontal* plane—i e , there is a sensation of turning round and round, which is not unpleasant After turning to the right (clockwise) the sensation is of turning to the left—i e , in a direction *opposite to the endolymph flow If now the individual is* turned with the head 120° forward, so that the vertical canals are influenced in the frontal plane, the vertigo is also in the frontal plane and if the head is kept down after turning the vertigo is in a plane parallel to the floor—i e , a sensation of *turning round and round If, however, after rotation the* head is raised the frontal plane becomes at right angles to the floor, and the sensation is one of "turning in the frontal plane" Now "turning in the frontal plane" is a matter of *doing "cart wheels"*, hence, what we *actually* experience is a sensation of *falling* in the frontal plane—i e , to the right or left Similarly if after turning with the head in the sagittal plane—i e , with the side of the head resting on the shoulder—the head is raised to the upright position, the sagittal plane or plane of rotation now becomes at right *angles to the floor*, and the sensation is one of "turning in the sagittal plane" Now "turning in the sagittal plane" is a matter of doing "somersaults", hence what we actually experience is a sensation of falling in the sagittal plane—i e , either backwards or forwards

It is no more, or less, difficult to understand why the vertigo after rotation in the horizontal plane is in a direction opposite to the endolymph flow than it is to understand why an image which is upside down on the retina is seen right side up by the brain In both cases it is essentially a matter of experience [25] When we turn the head to the right the *endolymph* lags behind and *moves relatively to the left* Experience from other receptive fields has taught us to associate such a movement of the endolymph with rotation of the head in the opposite direction If now the endolymph moves and the head remains still, we shall experience an *apparent movement of the head and* secondly *of* the body in the opposite direction, hence, when rotation to the right is stopped, the endolymph continues to move to the right and we feel as if it were turning to the left

C *Forced Movements.*

These phenomena are secondary to the vertigo and do not occur in its absence It is because we feel we are rotating, say, to the right *that* we past point to the left—i e , to the point *at which we imagine the object to be Falling may* be regarded as a past pointing of the entire body, and only occurs when the vertigo is in the frontal or sagittal plane

Before applying these facts to aviation, we may briefly summarise them as *follows* —1 It has been demonstrated experimentally that the semicircular canal system is capable of appreciating movements in the three planes of space, a function strongly suggested by its anatomical structure In view of this capacity the vestibular labyrinth must be regarded as part of the great *afferent* system which renders coordinated movement possible and maintains bodily equilibrium 2 The rotatory and other means of excitation introduced by Barany help us to establish the functional integrity or otherwise of the vestibular labyrinth and its central connexions

THE RESEMBLANCE BETWEEN A BIRD AND A PILOT

Returning to our opening analogy, it can at once be seen that the resemblance is artificial The bird flies itself, its deep receptive field constantly stimulated by the movement of the animal, and its cutaneous field freely open to excitation from the environment. The pilot flies a machine, more or less immobilised, with his cutaneous field to a great extent cut off from the environment *by the clothing necessary for maintaining his body warmth He obtains, however, valuable* information from the "feel of his joy stick," just as we by experience can feel a piece of dead bone at the end of a probe

But we have been further advised [19] that "to realise the importance of the ear in flying it is only necessary to consider a bird flying in a cloud"—i e , deprived of its sight *Here* I must confess to thinking that the phenomenon we are asked to consider under *ordinary circumstances* never occurs The quite remarkable degree of visual acuity possessed by birds especially by those with great ranges of flight (condor, vulture, &c) is proverbial, and the habits of *birds are peculiarly controlled* by the presence or absence of daylight, only by those species possessed of *a dark* adapted eye is nocturnal activity exhibited We must all have been struck by the seemingly complete absence of bird life on a *foggy* day On such a day in winter the gulls are not seeking *food* on Westminster Bridge, but are, so to speak, anchored to the water, while sea birds following in the wake of a steamer close up to and even alight on it immediately the vessel runs into a sea mist It is not here suggested *that a bird deprived of vision* is so handicapped as regards equilibration that it cannot fly, but *simply that* under these circumstances it does not fly The assumption that a bird can fly, relying exclusively on information derived from its labyrinth, remains an assumption. The flight of a bird is a highly coördinated activity, and after destruction of both labyrinths the degree of coördination necessary for flight is no longer possible. In other words, the results obtained by experiment are not evidence for the opinion that the labyrinth is *the* organ of equilibrium, but merely that it is *an* organ of equilibrium; or to borrow and transpose a phrase used by Dr. Hughlings Jackson: "To locate the damage which destroys equilibrium and to localise equilibrium are two different things."[26]

THE AFFERENT EQUIPMENT OF THE PILOT.

The ability of man to fly by night has been one of the main arguments adduced by those who contend that labyrinthine impressions are capable, almost unaided, of endowing the pilot with a "sense of position" in the air.

All flying officers, however, are unanimous in stating that at night "you have to see something." They maintain their position relative to the earth by means of a horizon—either the true horizon, or more often a false one between mist and sky, or by means of the moon or stars. Flying in pitch darkness is impossible, and by daylight in a cloud or fog all sense of position relative to the earth is lost, and one is apt to emerge from a cloud upside down, held in the machine by centrifugal force.

To get some idea of one's dependence on vision it is only necessary to fly as a passenger with bandaged eyes. In this connexion two points in particular are interesting. In the first place, I found I could appreciate with fair accuracy all movements with which I was familiar; that is to say, having recognised an initial change in direction, the end-result could be anticipated and correctly appreciated. But if evolutions took place with which I was totally unfamiliar, my loss of direction and position was complete.[27] Secondly, deprived of vision one instinctively seeks for other sources of information, which under ordinary circumstances pass unnoticed. These were, in the order in which they impressed me (I make no attempt to assess numerically their physiological significance): (*a*) auditory, the changes in note of the engine, the singing of the air through the bracing-wires; (*b*) cutaneous, air currents and sensations of warmth and cold on the two sides of the face, sensations produced by air currents under different parts of the clothing; and (*c*) pressure on the buttocks and soles of the feet.[28]

More recent tests carried out in Canada in which the pilot was blindfolded revealed his helplessness; unable to allow for the "torque" of the machine he flew in the arc of a large circle.[28]

VISION AS AN IMPORTANT FACTOR.

In reviewing, then, the afferent equipment of the pilot we are justified in placing vision in the forefront. It is by sight that he keeps a level antero-posterior plane by noting the position of the horizon relative to the radiator-cap, and by sight that he maintains lateral stability by noting the position of the wing-tips relative to the horizon.

But besides vision many other afferent impulses are doubtless involved, although several fail to pass the threshold of consciousness. To attempt to assess their individual worth in mathematical terms would appear as futile an undertaking as an attempt to give a numerical value to the importance of the tactile sensibility of the feet for walking. For success in flying or walking we primarily depend on those educative processes which we call experience.

The exaggerated influence claimed for the labyrinth is contradicted by the evidence supplied by deaf-mutes, since these individuals, with physiologically "dead" labyrinths, "can run and ride, dance and turn, hop and jump, and, presumably, could learn to fly."[10] It is only when we can partially suppress their visual and cutaneous sensations, as by immersing them under water; in other words, when we can approximate the conditions to those in which the labyrinth was originally developed—viz., the conditions of an organism exhibiting free motility in a fluid medium, that the deaf-mute behaves abnormally and loses all sense of direction.[29]

By blindfolding deaf-mutes and taking them up in the air attempts have been made[30] to demonstrate that without the aid of vision they have no "motion-sensing" perception. A careful scrutiny of the results of these experiments shows, indeed, that their ability to appreciate the direction of movement of the aeroplane is less than that possessed by normal blindfolded individuals. Such a result would be expected, since nobody can justifiably contend that the labyrinth of man is a vestigial organ with no useful function to perform. The adaptability of man, however, is one of his most characteristic features, and under ordinary conditions the deaf-mute can compensate for the absence of labyrinthine impulses; even in the experiments alluded to there is evidence that his ability to detect both the direction and extent of movement improved with experience. On the other hand, it is pertinent to observe that if we deprive a normal individual of his sight we at the same time gravely impair the utility of the labyrinth, for this organ controls the position of the retinæ in such a way that they conform to a plan with which experience has taught us to be familiar (v. infra). Moreover, it would appear in the highest degree improbable that an organ phylogenetically as old as the labyrinth should, so to speak, have had to wait for the advent of the aeroplane before the full extent of its utility could be demonstrated.

THE QUESTION OF VERTIGO.

It was a matter of everyday experience to come across officers who complained of giddiness while flying, and not unnaturally the part played by the internal ear in the production of this symptom was investigated.

The occurrence of vertigo as a result of labyrinthine excitation would appear to have been an obstacle to the proper conception of the functions of this organ. "Why look for a specialised organ," asks Cyon, "which would have the curious object of producing vertigo? Vertigo is a pathological phenomenon."[10] Rotatory vertigo, by which is meant a sensation of objects rotating in a certain direction, or of the body rotating in a certain direction, can be produced by disease, or in normal individuals by excessive excitation. Now the tests advocated by Barany help us to ascertain whether the vestibular paths are intact by noting the nature of the response elicited after excitation of each individual canal; at the same time it is absolutely essential to remember that the excitation employed, and the reactions consequently evoked, are altogether in excess of what is physiological. The crudeness of the method in no way interferes with its utility in disease, although were we to employ similar methods for testing other forms of sensation we should estimate the sense of touch by pinching and that of pain by torture.

But vertigo and its allied conditions, with their accompanying motor phenomena, can be elicited by means other than violent disturbances of the endolymph. It can be evoked by watching a rapidly moving object, as by looking at a waterfall, sitting in a room the walls of which are made to rotate, looking out of the window of a moving train, by producing an artificial strabismus, by moving about with the head in an unnatural attitude, and so on. A pigeon, for example, with its head tied down to its body becomes nearly as ataxic as one deprived of its labyrinth.[31] Vertigo, in fact, is an illusion due to disharmony of sensation. As a result of experience we have learnt to correlate the position of external objects and the position of ourselves with certain definite positions of the head and eyes. The picture of the external world is familiar to me in the erect position; if, however, I view it with my head between my legs I am presented with a picture which is unfamiliar, and my judgment of the distance from me of objects becomes erroneous. In a normal state of things the visual and other sensory impulses (auditory, tactile, proprioceptive) which go to make up the coördinating machinery are, with reference to the events in the external world which are giving rise to them, in accord with each other. If, however, these impulses are not in accord, if I receive information from one source which is contradicted by that received from another, my brain will not know which to believe, and trying to believe both I shall be in a dilemma. The simplest example of this is that produced by artificially altering the position of one eye[32]; impressions from the retina and ocular muscles fail to correspond, and to quote Hughlings Jackson,[33] "the eyes tell lies to the feet; they see things in places where the feet fail to find them." The converse is also true. Thus the deaf-mute, no matter how violently he is rotated, experiences no vertigo or disturbance of equilibrium; there being no response from his labyrinth, there is no disharmony of impulses and no dilemma. We must also recognise that violent stimulation in any one field may evoke such a violent response from that field that the coördinating centres fail to tone it down to conform with impulses originating in other receptive systems, and the resulting state of consciousness will be one of dilemma.† Illusions of movement can therefore be evoked by altering the relative intensity of the stimulus in different parts of the field.

Illusions.

These considerations are made use of by the producers of popular illusions. One such illusion seems especially instructive. The subject is blindfolded and stands on a board of convenient size laid on the floor. One of his hands rests throughout the experiment on the head of an individual standing immediately in front of him. The board is then gradually lifted by four conspirators two or three inches from the floor, while the individual in front gradually lowers himself on to his haunches. The victim now feels as if he were slowly but surely being lifted up to the ceiling, and when told to jump down, having planned a jump of several feet which in reality is only one of two or three inches, his feet find the floor before he expects it, and he falls to the ground. This illusion seems to show that in default of vision the almost complete absence of stimulation of the vestibular organ is not interpreted in consciousness as absence of movement in face of the stream of impulses from the musculo cutaneous field, which so strongly suggest the existence of movement, and are, in fact, so interpreted. The illusion, moreover, can be almost entirely abolished if the onlookers talk. Under these circumstances the blindfolded subject correlates his position in space with the nearness of the voices.

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† Cf. Sherrington for discussion of degree of potency of stimulus in lower level reflexes.[34]

Ocular vertigo, such as is evoked by looking at a waterfall, &c., is presumably dependent on movements of the eyes and the consequent displacement of the retinal pictures while the body remains stationary. That identical end effects can be produced by such diverse peripheral excitation, as is involved in watching a moving object on the one hand and in passive rotation on the other, appears at first sight remarkable. It finds its explanation, however, in the close interdependence between the oculo motor apparatus and the labyrinth and the close central connexions existing between the two systems, to both there is available a "final common path."

THE OCCURRENCE OF LABYRINTHINE VERTIGO DURING FLIGHT

Can the movements of an aeroplane be rendered sufficiently violent to evoke disturbances of equilibrium such as are evoked in the rotation chair? This question can only satisfactorily be answered by the combination of two experimental methods.

In the first it is necessary to determine the angular acceleration necessary to produce in any individual disturbances of equilibrium, and having done this to determine the angular acceleration possible in an aeroplane. My technical knowledge is far too meagre to permit of my attacking this problem, and the only contribution which I will venture is that no aeroplane can rotate so rapidly and through so small a circle as does the chair when used in the ordinary way for testing vestibular reactions. Another but far less exact method is to observe what happens to oneself in the air. In some observations which I was able to make through the kindness of several flying friends, some of which have already been referred to elsewhere,[35] the following points were revealed. One is bewildered at first by a series of startling sensations which, owing to their novelty, are unintelligible. To look over the side of the machine to see the countryside rising up at one, or to look down only to find the sun are experiences which render accurate observation difficult. Nevertheless in those early days I was never aware of rotatory vertigo, I was merely "lost." When, however, one had learnt to recognise the initial stages of each manœuvre and could therefore anticipate intelligently, the apparent movements of the external world rapidly began to correlate themselves with movements of the machine, and one finally began to look to these apparent movements for information.

The following general conclusions were arrived at: (1) That the power to orientate oneself, except in a "spin," is largely a matter of correctly interpreting the apparent movement of earth, clouds, sea, and sun; (2) that this interpretation is entirely a matter of experience; (3) that it is assisted, to what extent it is impossible to say, by auditory and tactile impressions and by changes in bodily attitude; (4) that during a "spin," provided the gaze is fixed on the ground below (or less preferably on the instrument board), there is no vertigo and no forced movement; (5) that immediately on coming out of a "spin," or even a "loop," "dive," &c., it is possible to identify a momentary disturbance of equilibrium as evidenced by a curious feeling of insecurity and vagueness; and (6) lastly, that vertigo can readily be evoked by keeping the gaze fixed on anything which is moving, or appears to be moving, faster than oneself, such as the wing tip, the tail, or the sun.

These rough observations relate to one individual only and may therefore be constitutional, but their general applicability is supported by the fact that the great majority of pilots (*a*) have learnt without being told to look at the ground when they spin; (*b*) do get giddy if they look at the wing tip or sun; (*c*) are sometimes aware that the termination of any manœuvre involving rotation is the time when they are apt to feel "queer"; and (*d*) do derive much useful information from the apparent movements of the external world.

These considerations lead us to the conclusion that the labyrinthine stimulation produced by evolutions in the air in a majority of healthy young men is not of sufficient intensity to evoke disturbances of equilibrium such as are induced by the rotation chair. This conclusion is corroborated by the practically unanimous statement of the experienced pilots examined that the effects produced by the chair far exceed, and are dissimilar in character to, the effects produced in the air.

Labyrinthine and Ocular Vertigo Contrasted.

On the other hand, a bright sunny day, a clear atmosphere, an aeroplane, and a skilful pilot are the materials par excellence for the production of ocular vertigo. The knock out blow which concusses the labyrinth and "reduces a vigorous athlete to an unstrung bulk of flesh"[36] is not very dissimilar in its effects to sitting in a fast spinning aeroplane facing and watching the tail, for under such conditions one may be reduced to a strictly comparable condition.

In thus suggesting that vertigo of ocular origin is to be expected during aerial acrobatics and vertigo of labyrinthine origin immediately after their termination, we are doing no more than applying the ascertained fact that endolymph movement relative to the canal, and therefore excitation of the crista ampullaris, is non existent during rotation provided the motion is smooth, but at its maximum when rotation is suddenly stopped—i.e., on deceleration of the chair or on coming out of a "spin."

It is evident that were labyrinthine vertigo produced in the air with the same facility as it is in the chair pilots would be helpless in its presence. It is not improbable, as Scott was the first to point out, that the brief period of time when the machine has straightened out from some rotatory evolution is the critical point; at this point, as we have seen, consciousness may be momentarily damped, and in a quick scout machine which goes easily into a spin, a pilot, especially if he is inexperienced, either from lowering of attention or even as a result of actual "forced movement," may throw the machine into a spin in the opposite direction with a fatal result. "Vertigo involves a slight interference with consciousness, since an exact appreciation of the relation of the body to its surroundings is involved in the state called consciousness."[37]

It is well known that stimulation of any of the canals in the horizontal plane is more readily borne than their stimulation in either the frontal or sagittal plane; rapid turning movements of the head are, for example, less disturbing than rapid nodding movements. During a "spin" with the head in the ordinary position and the gaze fixed on the ground the rotation is in the frontal plane, which is parallel to the earth; but when the machine comes out of the spin (i.e., deceleration) and flies on a level keel, supposing the attitude of the head relative to the body remains unaltered, the frontal plane becomes at right angles to the ground and the vertigo, if any, will be experienced in the frontal plane, giving a sensation of falling to right or left. This probably explains the moment of uncertainty above alluded to, and some pilots have discovered for themselves that it is preferable to keep the head down on coming out of a "spin," so that the position of the frontal plane remains unaltered—i.e., parallel to the ground. It is not certain, however, that the benefit derived from looking at the ground is wholly attributable to the accompanying position of the head, and I would suggest that it is partly a device for avoiding *ocular* vertigo. Provided one is two or three thousand feet above the ground, the earth looks homogeneous, there is no sharp detail, and it can therefore easily be fixed with the eye. Now it is well known that vertigo after rotation in the chair can be materially cut short by fixing the gaze.[12] I have, further, recently observed on myself that if a point on the ceiling is fixed through a roll of paper held close to the eye *during* rotation in the chair with the head thrown back 120° the disturbances of equilibrium when rotation is stopped, usually very severe, are very materially diminished.

VARYING TYPES OF REACTION TO LABYRINTHINE EXCITATION

Individuals vary greatly in the intensity of the reaction evoked by excitation of the vestibular system. Some cannot dance, swing, or go on a switchback; some of us are good, some are bad, sailors.

The striking feature of the reaction in such susceptible individuals is its loss of "local sign"; it is not a pure labyrinthine over response (nystagmus, vertigo, forced movements), but rather a replacement of the typical response by another characterised by nausea, vomiting, pallor, collapse, and fall of blood pressure. In these cases, although the peripheral end organ is free from disease, impulses originating in it irradiate widely and overflow with peculiar facility into other systems. Of these systems the motor paths which originate in the nucleus ambiguus are easily the most prominent. This tendency to overflow is a constitutional peculiarity in many normal individuals, who in other directions show no evidences whatever of lack of central control or of inhibition. In others, however, it may occur when the mental and physical health is disturbed from whatever cause. In states of regression it is especially common,[35] and vomiting in the air in a flying officer who had never previously experienced it was in France the signal for his being ordered a rest.

THE "SENSITIVENESS" OF THE LABYRINTH.

On the assumption that a pilot is primarily dependent on the functional efficiency of his vestibular apparatus, it was natural to take steps to discover whether his response to excitation was normal, excessive, or deficient. On admittedly hypothetical grounds a standard response was laid down for aviation candidates in the United States.

After ten turns in 20 seconds with the head 30° forwards, clockwise and counter clockwise, a horizontal nystagmus of between 16 and 36 seconds' duration and one past-pointing with each arm were accepted as normal. Candidates with less than 16 seconds' nystagmus were supposed to be deficient in "motion-sensing acuity," while those with more than 36 seconds were termed "hypersensitive." Out of many thousands of candidates examined only 2·0 per cent. were disqualified on these tests—i.e., about one-fifteenth of all those rejected—the vast majority of rejections being due to errors of vision.[38]

The average duration of nystagmus of all the candidates examined was 23·5 seconds after turning to the right and 23·2 seconds after turning to the left. Of those who showed less than 16 seconds' after-nystagmus, the average duration was 12·4 seconds both to right and left; of those who showed more than 36 seconds the average was 50·2 seconds after turning to the right and 48·0 seconds after turning to the left. The average number of past-pointings of all candidates was with the right arm after turning to the right and left 3·9, with the left arm 3·8.

The view that these simple tests are capable of indicating the functional integrity or otherwise of a portion of the vestibulo-cerebello-cerebral system is disputed by no one, nor can the arbitrary setting of the standards laid down be condemned from the point of view of practical policy. Whether, however, we are justified in asserting that an individual with less than 16 seconds' after-nystagmus is deficient in labyrinthine sensitivity, or that one with more than 36 seconds is the possessor of a hypersensitive labyrinth, is an entirely different proposition. It has, in fact, been shown that war pilots in the summer of their flying careers may exhibit reactions far in excess of the average.[10] As has already been pointed out, to test the degree of sensitivity of an organ by employing a stimulus far in excess of what is physiological is a curious method of procedure, but to draw far-reaching deductions therefrom is frankly unscientific. "The only scientific way of comparing degrees of sensitiveness of the vestibulo-cerebellar system is to obtain the minimal angular acceleration necessary to produce consciousness of rotation, or the minimal angle of tilt recognisable in consciousness." (Scott.)

It was hoped at one time by the employment of these tests to eliminate those individuals whose response to labyrinthine excitation was of the "vagus variety." It was thought that the individual who was prone to sea-sickness and disliked dancing and swinging would be likely to suffer from nausea and sickness in the air. Our expectations in this direction were not completely fulfilled. In response to the "chair" tests there was observed a frequent lack of correlation between the subjective and objective effects; an individual, for example, might show very slight forced movements and a short nystagmus period and yet suffer intense giddiness, with nausea, vomiting, and circulatory collapse. As a matter of experience, I have not yet met a pilot who is sick in the air and is a good sailor, but I know of hundreds who have never felt sick in the air who always have been, and no doubt still are, atrocious sailors. Hence a history of sea-sickness in assessing a candidate's suitability for flying must be viewed dispassionately. It would seem that the specific character of the stimulus, to estimate which our present methods are inadequate, plays a part. How else can we explain a case such as the following?

Captain Z., M.C., a dreadful sailor, waltzing makes him sick and swinging makes him giddy; nevertheless, he can throw a fast scout machine about in the air without the slightest hesitation or discomfort, and was twice decorated for successful gallantry in combats with enemy machines. After turning in the chair his nystagmus period was 18 seconds to the right and left, he showed violent forced movements, but experienced no visceral discomfort whatever.

To summarise, therefore, it is admitted that the rotation tests satisfactorily demonstrate the functional integrity of the vestibular system and its central connexions. Further, they may be useful in revealing not a vestibular system which over-responds, but rather a central nervous system in which impulses originating in the labyrinth are imperfectly controlled; but imperfect control in the chair is not necessarily associated with imperfect control in the air.

SUMMARY.

I have attempted to indicate that the art of flying, as regards the sensory-motor coördination involved, is an art which may be acquired by any healthy individual like other accomplishments, such as playing games or playing the organ, and that the ability to fly depends primarily on the wonderful adaptability of the human organism. This adaptability, again, is the immediate result of the ability of man to project his powers of appreciation and to benefit by experience. Just as it is impossible to gauge in mathematical terms the extent to which the various afferent and efferent systems participate in securing the perfect harmony necessary for carrying out the intricate evolutions of everyday life, so is it both unprofitable and unsound to indulge in similar speculations in regard to the art of flying. We must rest content in the knowledge that the human machine is so perfected as to permit of its carrying out the necessary coördinations. It would, moreover, be a grave mistake to suppose that the function subserved by any organ or group of organs has a significance under the artificial conditions of flight other than that which it has in life on the ground. Such a distinction has, however, been advanced in the case of the vestibular system, and it is therefore necessary to have a clear conception of its functions under natural conditions.

The conception of the labyrinth advocated by Cyon as the peripheral organ of the sense of space has never found acceptance with the main body of physiological opinion; it fails, moreover, to stand the test of experiment in the air. Moreover, it is highly improbable that an organ so peculiarly adapted by its anatomical structure to respond to stimuli arising exclusively within the body should be capable of subserving so projected an aspect of sensation as is involved by the term "the sense of space." On the other hand, anatomy and physiology combine in demonstrating that the labyrinth can and does appreciate movements in the three planes of space. In man and the higher vertebrates generally the only part of the body which is capable of movement in three planes is the head, and it is reasonable to conclude that the labyrinth is affected essentially by head movements, whether such movements be confined to the head or be part of a total movement of the individual. The range of these movements is strictly limited, of the head alone by the structure of the vertebral and occipito-atlantal joints, and of the body as a whole by its general structure and its ordinary physiological activities.[‡] The speed and range of these movements may, however, be artificially increased, and the excitation of the labyrinth thereby evoked will be correspondingly greater. The whirling dancer induces as severe an excitation of his semicircular canals as does Barany's chair, and with the same results except that by practice he has learnt to antagonise the effects of the reaction. That he is paid to whirl is surely evidence that his activities border on the unnatural. The point, however, to be insisted on is that rapid and continuous rotation in man can only be effected artificially, and that however produced it constitutes a violent stimulus and evokes a violent response.

The labyrinth, then, appreciates and so helps to modify and control the movements, and also the position, of the head, and, since the head is the leading segment, as a secondary effect it modifies and controls the movements and attitude of the rest of the body. Further, in the head end of the animal are placed the great distance-receptors, the eyes, "set movably in the head,"[36] and it is by reason of its ability to recognise movements of the head that the labyrinth is able reflexly to effect corresponding movements of the eyes. "The control of the oculo-motor muscles lies largely with the labyrinth."[36]

The function of the visual apparatus as a means of projecting his sensations into the environment has been developed in man to its culminating point, and it cannot be a matter for surprise that receptors subserving sensations with little, if any, projected quality come to be subordinate, so to speak, to those in which this quality is more in evidence. Impulses originating in the labyrinth reach, but hardly pass, the threshold of consciousness, or at least we cannot identify their individual presence as we can those of sight, sound, &c.; they are merely a wave in the great sea of impressions which together make up the state of consciousness. In this light they must be studied, not in isolation but in coöperation. It is especially through the close coöperation of the labyrinth, the proprio-ceptor of the head,[39] with the visual apparatus, the great distance receptor of the head, that the functions of the labyrinth derive so much of their importance in human physiology

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[‡] By this I intend a comparison between the ordinary physical activities of man as opposed to those of the Japanese spinning mouse or tumbler-pigeon.

"The function of the labyrinth is to keep the world right side up for the organism by keeping the organism right side up for the world"[38] This statement is peculiarly apposite in the case of those who explore the air, since it is by reason of the pre eminent influence of visual sensations and the necessity for their accurate adjustment that the labyrinth gains its true significance for the pilot We can, therefore, rest content in the knowledge that our conceptions of labyrinthine activity during flight harmonise with those broad conceptions of the activities of the nervous system in general, and of the labyrinth in particular, which science owes to the brilliant researches of Sherrington and his even more brilliant interpretations

CONCLUSION

In these lectures an attempt has been made to portray the mental and bodily mechanisms by which the healthy organism strives with varying success to counteract the abnormalities of its surroundings. It is difficult to avoid the conviction that were we to adopt a somewhat similar attitude in studying the functional reactions of the organism to abnormal processes arising not from without but from within itself—viz, the processes of disease—we should realise more than we do now that some at least of these reactions are not merely consequential and nocuous but rather compensatory and beneficial It would, further, appear that some such attitude is likely to foster a closer working alliance between the science of medicine and the more exact sciences on which it is founded, an essential preliminary to the advancement of medical thought and consequently of medical practice.

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AT the Crystal Palace on June 19th, 22nd, 24th, and 26th the Handel Festival will be held, we understand, on a larger scale than ever.

RESEARCHES ON THE TREATMENT OF BENIGN TERTIAN FEVER.

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THE results obtained with the help of my co workers, Dr Dagmar Curjel, W M S, and Assistant Surgeon J. O. Dewey, I M D, whilst I was in charge of the Malarial Research Laboratory, Dagshai, appear to me likely to lead to important advances in the treatment of these fevers Hitherto the treatment of malaria was summed up in one word, "quinine," and the only points at dispute were *the methods of administration* and the length of time this alkaloid should be taken The other alkaloids of cinchona bark have been used by numerous observers, but as far as I am aware have never been accurately tested MacGilchrist (1915), who made the most systematic trial hitherto recorded of these alkaloids, was unfortunate in having to test them under conditions where reinfections could not be excluded and where the cases could not be observed sufficiently long to exclude all the relapses The universal belief that quinine is equally a specific for all types of malarial fever will have to be abandoned before any material advance can be made in the treatment of these fevers. Malarial fever should be regarded not as one disease, but a group of three different fevers, due, as is already known, to three distinct parasites, and two at least of these require different alkaloids of cinchona bark for their treatment After making such a dogmatic statement, I will first explain how quinine came to be regarded as a specific for all three types of malarial fever.

Quinine invariably exerts an immediate effect on all three types of malarial infection, causing a rapid amelioration in symptoms and disappearance of the asexual parasites from the peripheral blood The annihilation of every asexual parasite in the body, or the prevention of relapses, is, however, the only test by which one can truly estimate the specific action of these alkaloids From the present statistical evidence it is almost impossible to estimate the degree to which this complete cure or sterilisation has been attained, as the figures are markedly influenced by one or more of the following factors —

(1) In the tropics quinine has to be administered under unfavourable circumstances—viz, under epidemic conditions—and reinfections may occur as soon as the quinine is withheld This effect may give rise to too unfavourable an impression as regards the cure rate

(2) Cases are often not observed much longer than the duration of treatment Many of the relapses are not seen by the same medical officer, and in this way too favourable a clinical impression is created as regards the curative value

(3) The microscope is not sufficiently employed Fevers are often diagnosed as "malaria" from symptoms only, and malignant tertian infections from the presence of pernicious symptoms

In spite of these factors, which may cause an unduly favourable or unfavourable estimate of the sterilisation rate, there is a general clinical impression that these three fevers relapse after quinine treatment, in the following order of frequency quartans most frequently, then benign tertians, and malignant tertians least frequently of all This corresponds to our own experience, that the cure rate produced by quinine in the three types of fever is as follows 90 per cent or over in malignant tertians, 20 to 30 per cent in benign tertians, and under 20 per cent in quartan infections

The Test of a Cure.

Many of the previous workers on the action of the cinchona alkaloids were compelled to work under unfavourable conditions Stephens and his co workers had to a large extent laid down the conditions that were necessary for the test of a cure We were more fortunate in treating British troops under our immediate command, where every detail could be followed in the treatment. Every one of our recorded cases remained for two months or longer under observation after completion of treatment The adverse factors already mentioned did not affect our figures, as they could be prevented by—

(1) The exclusion of reinfections amongst our cases during treatment and observation Dagshai is situated on

an isolated hill-top at 6000 feet above sea-level; there are very few sites suitable for breeding-places for the anophelines, and the temperature conditions are, for the greater part of the year, unfavourable for the fertilisation of the female gamete.

(2) Every case recorded as a cure was observed for at least two months, sometimes longer. This observation time-limit, first suggested by Stephens, was tested by plotting every parasitic relapse that occurred amongst our benign tertian cases. These relapses numbered 978, and are shown in the following table.

Table I. shows the frequency distribution of 978 parasitic relapses, all due to the benign tertian parasite, which occurred during and after treatment, and are shown in intervals of weeks.

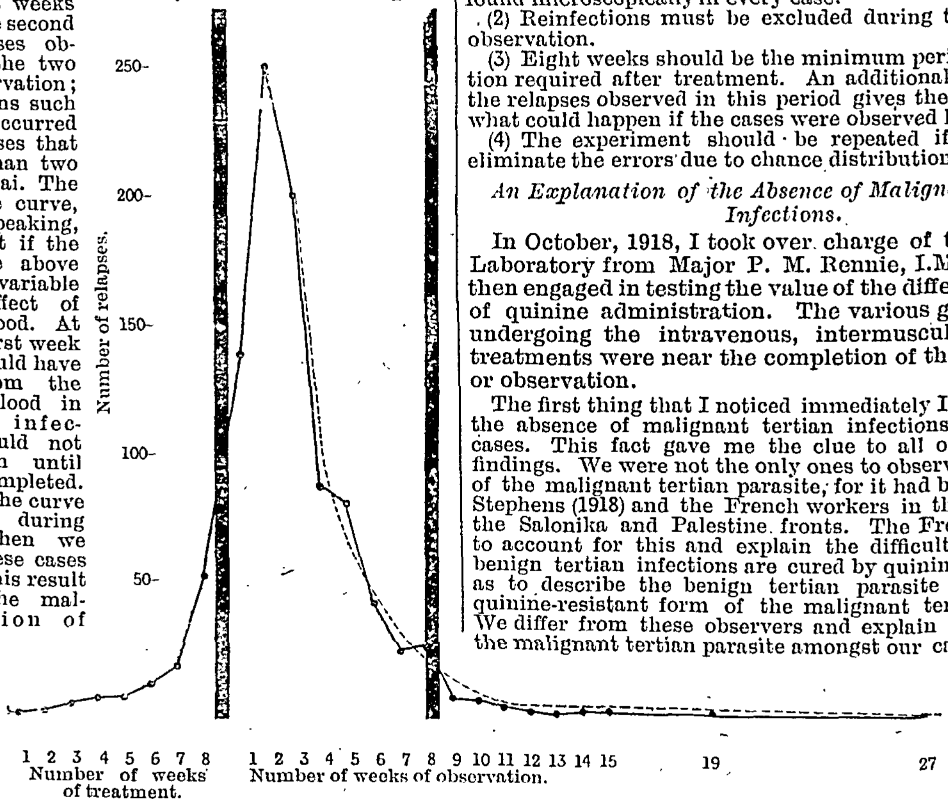
TABLE I.

(A) Interval of weeks. (B) Number of relapses.

—	During treatment.								After treatment.																	Total.
(A)	1	2	3	4	5	6	7	8	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	19	27	—
(B)	—	1	4	6	7	12	19	53	139	248	199	89	82	43	25	26	7	6	4	2	1	2	1	1	1	978

These results are better depicted in the form of a graph, which is here shown. The two vertical bars divide the curve into three parts. The first part contains the relapses observed during the eight weeks of treatment; the second part the relapses observed during the two months of observation; the third contains such relapses as occurred amongst the cases that stayed longer than two months in Dagshai. The first part of the curve, theoretically speaking, should be absent if the statement made above about the invariable immediate effect of quinine holds good. At the end of the first week all parasites should have disappeared from the peripheral blood in benign tertian infections, and should not be seen again until treatment is completed. Instead of this the curve gradually rises during treatment. When we investigated these cases we found that this result was due to the maladministration of quinine, by patients avoiding treatment, intermittent types of treatment, and too large doses. As soon as these factors were recognised and corrected no further parasitic relapse occurred during treatment.

Graph showing Frequency Distribution of 978 Parasitic Relapses.



The second part of the curve shows the time frequency of the relapses that occur during the two months' observation after treatment. As the first part of the curve is due to an error it is not included in the calculation of the mean and standard deviation. The mean of these figures is at 3·404 weeks, and the standard deviation is ± 2·42 weeks, indicating that three-quarters of the relapses occur between the first and sixth week after treatment. The eight weeks' period of observation after treatment laid down by Stephens is a sound practical period to test a cure, as it includes over 90 per cent. of the relapses that may occur after treatment. The third part of the curve from the ninth week onwards could not be accurately determined by us, as we could not keep the men indefinitely away from their units during war. I consulted Professor Karl Pearson, F.R.S., to see if he could help me to obtain some idea at which point this curve might possibly end. I must thank him for the trouble he has taken to work out the figures. He tested them by two different methods and found that the end-point occurs somewhere about the thirty-sixth week—that is, in benign tertian infections, if the blood is examined every week for nine months and no parasites are found, the case can be regarded as an absolute cure. A rough estimate of this portion of the curve can be arrived at by drawing a free-hand curve from the point at three weeks to the thirty-sixth week, shown as a dotted line in the graph. This portion represents another 6 per cent. of relapses on those already observed during the eight weeks of observation. This additional 6 per cent. gives the necessary correction to obtain the total number of relapses that would occur if the cases were observed for the full nine months after treatment.

(3) The parasite was seen microscopically in every case before the patient was placed on treatment. Individuals harbouring the same species of malarial parasites were tested together under the same conditions. In much of the older work the three species of parasites were indiscriminately mixed up in the same treatment groups.

Stephens (1918) suggested that a seasonal influence was present in his cases, which appeared materially to affect the cure-rate. In an article now in press we have dealt with this point, and consider that the error of chance distribution could explain the variations in cure-percentage better than any seasonal influence. It is immaterial which explanation is correct, but we know that such fluctuations do occur, and a repetition of the test would settle the question whether a cure-percentage was accurate or not.

The conditions required to test a particular cure for malarial fevers may be summed up briefly—

(1) The population under investigation should be sufficiently large and homogeneous. At least 100 men should be treated, and the parasites must be of the same species and found microscopically in every case.

(2) Reinfections must be excluded during treatment and observation.

(3) Eight weeks should be the minimum period of observation required after treatment. An additional 6 per cent. on the relapses observed in this period gives the correction for what could happen if the cases were observed longer.

(4) The experiment should be repeated if necessary to eliminate the errors due to chance distribution.

An Explanation of the Absence of Malignant Tertian Infections.

In October, 1918, I took over charge of the Research Laboratory from Major P. M. Rennie, I.M.S., who was then engaged in testing the value of the different methods of quinine administration. The various groups of men undergoing the intravenous, intermuscular, and oral treatments were near the completion of their treatment or observation.

The first thing that I noticed immediately I took over was the absence of malignant tertian infections amongst our cases. This fact gave me the clue to all our subsequent findings. We were not the only ones to observe this absence of the malignant tertian parasite, for it had been noticed by Stephens (1918) and the French workers in their cases from the Salonika and Palestine fronts. The French, in order to account for this and explain the difficulty with which benign tertian infections are cured by quinine, went so far as to describe the benign tertian parasite as an altered quinine-resistant form of the malignant tertian parasite. We differ from these observers and explain the absence of the malignant tertian parasite amongst our cases as due to the specific action of quinine, for all our cases had undergone a course of treatment with this alkaloid before arrival at the depôt. This statement is based on the following data.

(1) Out of 992 parasitic findings only 14 individuals were found to harbour the malignant tertian parasite. There were 978 showing benign tertian infection.

(2) At this depôt our experience of malignant tertian infections was small, but every case treated by quinine was cured. This corresponds with the experience of Thomson (1917) and Barlow (1915). Thomson estimates the cure-rate at 80 per cent. and Barlow at 100 per cent. if treatment were continued for a month.

(3) Our cases were drawn largely from the Punjab, a province where there is a seasonal prevalence of these two parasites, benign tertians at the beginning and malignant tertians at the end of the hot weather. In spite of this seasonal prevalence the malignant tertian parasite was rarely found, as all our cases had been treated with quinine before arrival at the depôt.

(4) One hundred and two men had been diagnosed as malignant tertian infections, crescents being noted in their

medical history sheets. These men had been treated with quinine at their units in the plains. In Dagshai they only received an iron tonic. There were no malignant tertian relapses, 64 relapsed with benign tertian infection, and 38 did not relapse. This preponderance of benign tertian relapses in a malignant tertian series is probably due to double infections, as it is difficult to see how the pathologists could have made an error in diagnosing crescents.

(5) In a similar series of 102 different men diagnosed as benign tertian infections these parasites were noted in their medical history sheets, and the men were treated exactly as the group above. There were 76 benign tertian relapses, no malignant tertians, and 26 did not relapse. The lower cure rate in benign tertian infections should be noted and the absence of malignant tertian relapses in both series.

The specific action of quinine on the malignant tertian parasite explains how this parasite disappears from the blood of malarial patients who have returned home from the tropics, as such individuals have been well drugged with quinine.

The Low Sterilisation rate of Quinine in Benign Tertian Infections

The second important point that became apparent after we analysed our results was the low cure rate of quinine in benign tertian infections. Out of 663 cases of this infection treated with quinine there were 32.4 per cent of cures; nearly 70 per cent of the cases relapsed in spite of treatment. The series of cases given in Table II. were commenced in Major Rennie's time and completed by us. The results obtained were as follows.

Table II. gives a comparison of the results we obtained by the different methods of quinine administration in benign tertian infections.

TABLE II.

Method	No of cases	Cure per cent	Duration of treatment	Quinine in grains per course
(A) Intravenous combined with oral	100	18	4 days to 8 weeks	48 to 678
(B) Intermuscular combined with oral	94	27.6	8 weeks	1284
(C) Oral alone—				
(1) Stephens intermittent 45 gr per diem for two consecutive days weekly	90	18.8	8 „	720
(2) Stephens intermittent 30 gr per diem for two consecutive days weekly	113	30.0	8 „	480
(3) Ross and Thomson's method continuous for four months	76	52.6	16 „	1980
(4) Continuous for ten days 30 gr per diem	190	42.1	10 days	300

Comments

(1) The duration of the treatment is an important factor in the cure. Rennie found that both in the intravenous (1 to 5 injections) and intermuscular (12 injections) groups the injections had to be followed by an oral treatment lasting in all two months, in order to obtain a better apparent percentage. In the long continuous treatment (Ross and Thomson), extending over a period of four months, the cure percentage worked out at 52.6, or double that of the two months' courses.

(2) The method of quinine administration did not materially affect the cure rate. The intravenous method gave the best immediate results and caused the parasites to disappear from the peripheral blood quicker than the other methods. The absolute cure rate was bad, as the first few cases were only given 2 to 5 injections, which were not followed by quinine orally.

(3) The cure percentage was low in all the courses of two months, and varied from 18 to 30 per cent. The short continuous course of ten days gave a higher cure percentage than was expected—i.e., 42.1 per cent. It is possible that the error of chance distribution made this figure unduly high, but it must be noted that another rather serious and unknown error was introduced into the group by the fact that some men bought quinine during the period of observation and administered it to themselves. The latter factor only affected this group in one series, as the armistice had been declared and the men were anxious to return to their units in the hope of getting home quicker.

We are therefore able to confirm the fact that quinine has a low rate of cure in benign tertian infections. This has already been shown by numerous other observers.

The Cause of the Preponderance of Benign Tertians Amongst our Cases.

The malarial population we investigated at Dagshai was a selected one. This selection was brought about by quinine, as all our cases had received a course of this drug before arrival at the depôt.

We have already stated that quinine exerts a highly specific action on the malignant tertian parasite, and therefore practically eliminates this parasite from the cases which have undergone a good course of treatment. The cure rate of quinine for benign tertians is low, and under such conditions quartan and benign tertian infections will relapse owing to the failure of quinine and appear again and again amongst a treated population. Quartans form a very small proportion of the cases (this infection is relatively rare in the Punjab) and can be neglected. The infection seen amongst a treated population in a non-infected area is practically all due to the benign tertian parasite.

The Effect of Repeated Courses of Quinine on Benign Tertian Infections.

After I had analysed our Dagshai results and seen the low cure rate of quinine in benign tertian infections, I considered that by giving short courses of treatment a larger number of effective men could be obtained in a shorter space of time than by giving the long courses of four months quinine treatment advocated by Ross and Thomson. The results of this experiment are shown in Table III.

This group consisted of 475 men who had been treated by quinine for malaria and sent up to Dagshai, where they were placed on an iron tonic. Out of these, 277 relapsed, and benign tertian parasites were found in every one of these relapses. Out of these 277, 204 could be observed for the full two months after a further course of treatment, and of these 145 relapsed. Ninety-five could be followed for the full period after the second course of treatment at Dagshai, and 76 relapsed; 45 of these could be followed after the third course and 32 relapsed. Ten of the 32 relapses could be followed after the fourth course, and 8 relapsed. The actual cure rates for these four courses at Dagshai work out at 28.9 per cent., 20 per cent., 28.28 per cent., and 20 per cent. respectively, or an average of 24.4 per cent. for each course of treatment. The maintenance of the cure rate about a constant of 25 per cent. from the first to the fourth course of treatment is a very important fact, as it indicates that neither does the parasite become more and more quinine resistant, nor does the host's resistance alter, otherwise the cure percentage should diminish with each subsequent course. Clinically one cannot say whether a given case will be cured with one or many courses; it seems immaterial whether the patient is undergoing his first or fourth course, for with each course he stands an equal chance of cure.

Whatever explanation may later on be advanced to account for this result, it shows that the cure rate is dependent on some chance factor.

TABLE III.—*Intervals in Weeks during which Relapses Occurred.*

No of men in each group	Treatment	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	Total No of relapses	Total No of cures.
475	Treated on the plains and observed in Dagshai	115	76	30	20	10	6	6	7	1	1	1	–	1	2	1																								277	198
201	Courses of quinine treatment in Dagshai: 1st				4	4	15	10	6	12	22	12	15	3	7	9	7	6	5	1	5	2																		145	56
95	2nd								1	1	5	1	3	4	4	4	2	4	7	2	5	10	6	3	3	1	1	5	2	1	–	1								76	19
45	3rd														1	1	1	1	–	1	2	3	1	1	–	2	4	2	2	3	2	–	1	1	–	1	1	–	1	32	13
10	4th																							1	–	–	–	–	–	1	1	1	1	2	–	–	1	–		8	2
2	5th																																		1			1		2	

The Rate of Parasitic Destruction.

We know that the asexual malignant tertian parasite forms 8 to 12 merozoites every 48 hours and is most influenced by quinine. The asexual benign tertian parasite forms 16 to 24 merozoites every 48 hours and is less easily destroyed by quinine. On the other hand, the quartan parasite has the slowest rate of multiplication, 8 to 12 merozoites every 72 hours, and is the most refractory to quinine. This difference in the multiplication-rate is thus not sufficient to explain the difference in cure-rates by quinine, although it undoubtedly plays a part.

In our calculations, if we disregard the occurrence of deaths and the production of gametocytes (i.e., non-multiplying forms), we can consider the rate of multiplication to be a continuous one—that is, 12-fold in malignant tertian and 24-fold in benign tertian infections every three days. An adult man of 68 kg. body weight possesses about 25,000 billion erythrocytes. Ross, in his enumerative studies, found that in severe infections about 12 per cent. of the erythrocytes were infected with parasites (3000 billion parasites), and when the parasites fell below 250 million (1 parasite in 100,000 erythrocytes) they produced little or no symptoms. Theoretically, a single parasite would be capable in three weeks' time of multiplying sufficiently to produce fever. Every parasite in the body must be destroyed before a complete cure or sterilisation is effected. In latent malaria we know that a large number of parasites can exist in the host and multiply without causing obvious symptoms, but any condition that depresses the vitality of the host can convert the latent malaria into an active disease. As regards the rate of parasitic destruction, we know that a single dose of quinine cannot cure a case of malignant tertian infection, but a series of doses are required extending over a month before a complete cure results. This fact points to the conclusion that the rate of parasitic destruction must be under 100 per cent., otherwise a few intravenous injections of quinine would be sufficient to sterilise every case of this infection. The rate of destruction must be over 95 per cent., otherwise the course of treatment would have to be prolonged for more than a month. Theoretically the rate of parasitic destruction by quinine in malignant tertian infections is about 98 per cent. of each asexual brood. In benign tertian infections, even after a four months' course of quinine treatment (Ross and Thomson), only 50 per cent. of the cases are sterilised.

Quinine in all types of malarial fevers causes an immediate effect on symptoms and a rapid disappearance of parasites from the peripheral blood. Ross considers that this effect is largely due to a reduction in the parasitic population from 3000 billion or more (febrile stage) to 250 million (afebrile). Under these conditions the rate of destruction in benign tertian infections must lie between these two values, 90 and 98 per cent., and the difficulty in sterilisation shows that the rate must be nearer 95 per cent. than 98 per cent.

The cure-rate for a month's course of treatment in this infection varies for the different alkaloids as follows: Quinine 20 per cent., cinchonine about 40 per cent., cinchona febrifuge 50 per cent., cinchonidine and quinidine about 60 per cent.; so that the last two alkaloids must cause a greater percentage destruction of each generation. As the rate of multiplication of the benign tertian parasite is about twice that of the malignant tertian, it follows that in order to destroy every parasite in the body of the host the treatment should extend over six weeks, instead of a month, as for malignant tertian infections.

The Effect of the Total Alkaloids of Cinchona Bark on Benign Tertian Infections.

Cinchona febrifuge is a preparation containing the total alkaloids extracted from cinchona bark, made at the Government factories in India and issued in the form of 3½ gr. tablets. According to MacGilchrist, its average composition is as follows:—

		Per cent.
Crystallisable alkaloids	Cinchonine...	18·58
	Cinchonidine	5·84
	Quinine	7·40
	Quinidine	22·83
Non-crystallisable alkaloids ...	"Quinoidine"	29·12
Moisture, ash, &c.		16·23

The bark, in addition to these alkaloids, contains acids, neutral principles, colouring matter, a trace of volatile oils, gum, starch, and other vegetable matter. The large amount of ash present in cinchona febrifuge is due to the fact that magnesium sulphate is added to the alkaloidal mass to facilitate the preparation of tablets. Cinchona febrifuge was advocated many years ago by Prain owing to its cheapness. We determined to give it a trial, for if it proved to be as efficacious as quinine, its general use would effect a considerable saving in the amount of bark now used to extract quinine. The drug was tested on two series of men. The first series of 53 men were treated for 21 days, with 21 grains given daily by the mouth, the cure-percentage worked out at 50·9. The second series of 57 men were treated as above, but the cinchona febrifuge was only given for 10 days; the cure-percentage worked out at 52·7. Combining these two groups of men (110 individuals) the cure-percentage works out at 51·8. The conclusions we arrived at were as follows:—

(i.) The administration of cinchona febrifuge in benign tertian infections is better than quinine. A three weeks' course gives about the same curative results as a four months' course of quinine (Ross and Thomson's method). The immediate results are also slightly better.

(ii.) The amount of cinchona febrifuge given during a course amounts to 441 gr. and costs 1*s.* 1*d.*, as compared with 1980 gr. of quinine for a four months' course, costing 16*s.* 8*d.* (price in June, 1919).

(iii.) Cinchona febrifuge given in tablet form is more pleasant to take and less toxic than quinine.

(iv.) A considerable saving would be effected in the amount of bark, as the same quantity of bark which yields from 5 to 7 lb. of quinine would give 100 lb. of total alkaloid. This is an important consideration at the present time, when there is a shortage of quinine.

The benign tertian parasite is responsible for about 50 per cent. of the malarial infections in India, and in England, amongst the troops returned from the tropics, it is practically the only malarial infection seen. The employment of cinchona febrifuge in this infection would save the Indian Government approximately 2½ lakhs, or £22,500, annually in drugs, excluding the question of efficiency in men. This result alone should justify the value and need of further research work in the treatment of these malarial fevers.

The Effect of the Cinchona Alkaloids on Benign Tertian Infections.

Fourteen alkaloids have been isolated from the various species of cinchona bark, since Pelletier and Dumas in 1820 first discovered quinine and cinchonine. The names and formulæ of the various alkaloids found in cinchona bark are as follows:—

(A) Crystallisable alkaloids.

Cinchonine and its isomeride. $C_{19}H_{22}ON_2$—Cinchonine and cinchonidine.
Dihydrocinchonines $C_{19}H_{24}ON_2$—Hydrocinchonine, hydrocinchonidine.
Methoxycinchonines $C_{20}H_{24}O_2N_2$—Quinine, quinidine.
Methoxydihydrocinchonines $C_{20}H_{26}O_2N_2$—Hydroquinine and hydroquinidine.
Alkaloids of the formula $C_{19}H_{24}O_2N_2$—Quinamine and conquinamine.
Alkaloids of the formula $C_{16}H_{18}ON_2\frac{1}{2}H_2O$—Paricine.
Alkaloid of unknown composition—Javanine.

(B) Amorphous alkaloids known as "quinoidine."

Dicinchonine $C_{38}H_{44}O_2N_4$.
Diconquinine $C_{40}H_{46}O_4N_4$.

We can dismiss the amorphous alkaloids from a therapeutic point of view, for we treated a dozen cases with the Laverain remedy (a mixture of quinoidine, arsenic, and picric acid). All these cases relapsed, and some of them had parasites in the peripheral blood during the whole course of treatment. Eight only of the above crystalline alkaloids need be considered, as the others exist merely in minute quantities. These alkaloids can be grouped in two series.

(A) The cinchonine series, which includes cinchonine and its isomeride cinchonidine; and the dihydrocinchonines—hydrocinchonine and hydrocinchonidine.

(B) The quinine or methoxycinchonine series, including quinine and its isomeride quinidine, hydroquinine and its isomeride hydroquinidine.

We can dismiss quinine at once, as only 7·4 per cent. of this alkaloid is present in cinchona febrifuge, and we have seen that this alkaloid produces a low cure rate in benign tertian infections. Cinchonine was tested in 14 patients, of whom eight relapsed. The drug is very toxic and badly tolerated. I had the greatest difficulty in persuading these individuals to continue their treatment for the full three weeks, owing to the intense symptoms of cinchonism. The number of relapses did not justify the employment of this toxic alkaloid for any further trials. The hydro-alkaloids of the quinine and cinchonine series I was unable to obtain, and we were therefore left to test the two alkaloids, quinidine and cinchonidine.

I placed a batch of men on treatment with these two alkaloids. At this important stage of my research I was ordered to the recent Afghan affray. The testing of these alkaloids I therefore entrusted to my co-worker, Assistant-Surgeon Dewey, who has kindly forwarded to me the results obtained.

Quinidine sulphate 10 gr. orally twice a day for 21 days; 62 cases of benign tertian infection treated, of whom 23 relapsed. Cure-percentage 62·9 per cent.

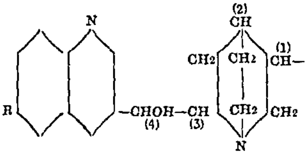
Cinchonidine sulphate 10 gr. orally twice a day for 21 days. Forty-six cases of benign tertian infection treated, of whom

17 relapsed, cure percentage, 63 1 per cent As cinchona febrifuge contains 22 8 per cent of quinidine and 5 84 per cent of cinchonidine, the efficacy of the total alkaloids is dependent largely upon the quinidine content or the cinchonidine quinidine mixture An interesting point is that many have unknowingly used quinidine, for Messrs Howard, of Ilford, informed me that the bulk of the quinidine they extract is sold for the Eastern market, where, no doubt on account of its cheapness, it is substituted for quinine

This result of the value of quinidine and cinchonidine at first appeared rather puzzling to me, as my knowledge of the stereo isomerism of these alkaloids was very limited, and I am deeply grateful to Mr H King, M Sc , of the Medical Research Council's scientific staff, for all the help he has given me on the chemical aspect of this problem

The Stereo isomerism of the Cinchona Alkaloids

The researches of Konigs, Skraup, and Rabe have led to the assignment of the following general formula being assigned to these cinchona alkaloids —



Where R = H in the cinchonine series,
= OCH_3 in the quinine series
R = CH CH_2 in the non hydro-alkaloids,
CH_2 CH_3 in the hydro-alkaloids

The alkaloidal molecule consists of two portions—the quinoline nucleus on the left, and the quinuclidine nucleus, more commonly spoken of as the "second half" These two portions are connected by a secondary alcohol group (CHOH) The position of the four asymmetrical carbon atoms are shown, numbered (1) to (4) Each substance of the above formula should therefore have 16 optically active isomerides, 8 of which would of necessity be the enantiomorphous (mirror image) forms of the other 8 The number of those actually known is very small, as the following considerations show The asymmetry of the carbon atoms (1) and (2) is the same for the four alkaloids, cinchonine, cinchonidine, quinine and quinidine, as on oxidation they all yield the same dextrorotatory compound—meroquinene—in which substance the asymmetry of the carbon atoms at (3) and (4) is destroyed In agreement with this observation is the fact that β vinyl α quinuclidine oxime is the same when formed from any of these four alkaloids A loss of asymmetry of the carbon atom at (4) occurs when these four alkaloids are reduced to dioxy bases, as the secondary alcohol group (CHOH) is replaced by $—CH_2—$

In spite of this loss of asymmetry four different dioxy basis are formed—viz , cinchotenine, cinchotenidine, quitenine and quitenidine It follows that the different optical activity of these bases and the four alkaloids is conditioned by the asymmetry of the carbon atom (3) This is further supported by the observation that quinine and quinidine both yield the same dextrorotatory quinotoxin, whilst cinchonine and cinchonidine yield the same dextrorotatory cinchotoxin In this case the asymmetry of both carbon atoms at (3) and (4) is destroyed At present it is not known what part the carbon atom at (4) plays in the optical activity of these alkaloids

The cinchona alkaloids may therefore be bracketed together in pairs as follows —

Cinchonine—cinchonidine Hydrocinchonine—hydrocinchonidine
Quinine—quinidine Hydroquinine—hydroquinidine

The chemical differences between these four groups are as follows The quinine series are methoxycinchonines—i e , alkaloids in which H of the cinchonine series has been replaced by a CH_3O group at position 6 in the quinoline ring The hydro alkaloids differ from the non hydro alkaloids in that the vinyl group (CH CH_2) of the latter has been converted into a CH_2 CH_3 group The difference between the members of each pair—e g cinchonine and cinchonidine —is due solely to the spatial arrangements of the atoms around the asymmetrical carbon atoms at (3) and (4)

The following table shows the magnitude and signs of the optical activity of the above alkaloids, as base in alcohol as a solvent

Alkaloid	Hydro-alkaloid	Isomeride	Hydro-isomeride
Cinchonine $[\alpha]_D + 224\ 4$	Hydrocinchonine $[\alpha]_D + 189\ 8$	Cinchonidine $[\alpha]_D - 111$	Hydrocinchonidine $[\alpha]_D - 98\ 4$
Quinine $[\alpha]_D - 158\ 2$	Hydroquinine $[\alpha]_D - 142\ 2$	Quinidine $[\alpha]_D + 215\ 5$	Hydroquinidine $[\alpha]_D + 265\ 3$

Now all of the above crystalline alkaloids which have been tested exert a marked effect on the symptoms, and disappearance of the parasites from the peripheral blood in cases of benign tertian infection, and those I have tested have the same action on the malignant tertian Again, my co worker, Dr Dagmar Curjel, tested the effects of these alkaloids on the hæmoproteus of the pigeon, and found that they had no parasiticidal action These alkaloids, therefore, show a marked selection for the human malarial parasite, but in different degrees We have already seen that quinine is a specific for the malignant tertian parasite, and MacGilchrist (1915) considered that hydroquinine was even better than quinine Our Dagshai results show that quinidine and cinchonidine are more selective for the benign tertian parasite than quinine or cinchonine

The Factors on which the Parasiticidal Action Depends.

As far as can be reasoned from a chemical study, the parasiticidal action of these cinchona alkaloids is dependent on three factors in the complex alkaloidal molecule

(i) The group occupying position 6 in the quinoline ring Cinchonine is very toxic for man but the substitution of a methoxy group (CH_3O) in the quinine series decreases the toxicity without materially altering the parasiticidal action Grimaux and Arnaud have shown that toxicity increases with further increase in the size of the radicle occupying this position

(ii) The vinyl group (CH CH_2) in the quinuclidine system The vinyl group is replaced by a carboxylic group (COOH) in the formation of quitenine and cinchotenine, and Ramsden has found quitenine inert against the malarial parasite The inactivity may be due to a chemical reaction between an acid and the alkalies of the plasma The vinyl group is not a decisive factor, as it is present in cinchotoxin and quinotoxin, and both these keto bases have no parasiticidal action against the malarial parasite The hydrogenation of the vinyl group (CH CH_2) to CH_2 CH_3 in the hydro alkaloids renders such alkaloids more difficult to oxidise, and they are accordingly not easily broken down in the body tissues This may increase their parasiticidal action MacGilchrist has shown that hydroquinine has a more potent action than quinine on the malignant tertian parasite

(iii) The grouping of the quinuclidine system around the asymmetrical carbon atom at (3), as shown by the optical rotatory power We have seen that the asymmetrical carbon atoms at (1) and (2) in the *cinchonine and quinine series are all similar and therefore need not be considered further In the formation of cinchotoxin and quinotoxin the asymmetry of the* carbon atom at (3) is destroyed and the parasiticidal action is also destroyed In cinchotenine and quitenine, on the other hand, the asymmetry is still preserved, yet these substances have no therapeutical value So that the asymmetry of this carbon atom is essential but not decisive

The lævorotatory alkaloids, quinine and hydroquinine, have a specific action on the malignant tertian parasite, whilst the dextrorotatory alkaloid quinidine (hydroquinidine has not been tested as yet) is more powerful than quinine in its action on the benign tertian parasite The corresponding lævorotatory isomeride cinchonidine behaves very similarly in its action on the benign tertian parasite Both these isomerides are much less toxic to man than quinine We therefore conclude from this chemical study that

(1) *The methoxycinchonines—viz , the quinine series—are* less toxic than the cinchonine series

(2) The hydro alkaloids are more stable

(3) That the *lævoratory alkaloid quinine is a specific for the malignant tertian parasite, whilst the dextrorotatory* alkaloid *quinidine is the best alkaloid* tested so far for the benign tertian *parasite*

Conclusion

Much more work will have to be done, both chemically and experimentally, before we can gain an idea of the exact action of these alkaloids on the malarial parasites The work is being continued under the Medical Research Council, and I may here take the opportunity to thank Dr H H Dale, F R S , of their staff, for kindly permitting me to work in his laboratory and for the very material help he has given me, both by his advice and by placing the resources of his laboratory at my disposal

References —Acton H W Curjel, D F and Dewey J O 1920 Diagnosis and Treatment of Benign and Malignant Tertian Infections, Ind Journal of Med Research (in the press) Barlow N 1915 Amer Jour of Trop Med and Prev Med vol xii pp 585–596 Thomson D , 1917 Journal of the R A M C vol xxix , pp 1–37 MacGilchrist A , 1915 Ind Journal of Med Research Prain, Lieut Col W , 1902 The Use of Cinchona Febrifuge in Jails Circ 35 of the Inspector General of Jails Bengal

EXFOLIATIVE DERMATITIS OCCURRING DURING ARSENICAL TREATMENT.

(*With a Note on Toxic Jaundice.*)

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DURING nearly ten years' experience with arsenical preparations in various parts of the world many thousands of cases of syphilis have come under my supervision, and it is my opinion that *severe* cases of exfoliative dermatitis and toxic jaundice occur only in a very small fraction. From time to time cases of erythema occurred after one or more injections, but this condition soon disappeared; the erythema has the appearance of a scarlatiniform or morbilliform rash, and has frequently been mistaken by inexperienced medical officers for scarlet fever. In some cases it is accompanied by high pyrexia, 104 or 105°, but more often than not it is comparatively mild. It may also be mistaken for German measles, and acute cases become severely ill. Desquamation follows these cases.

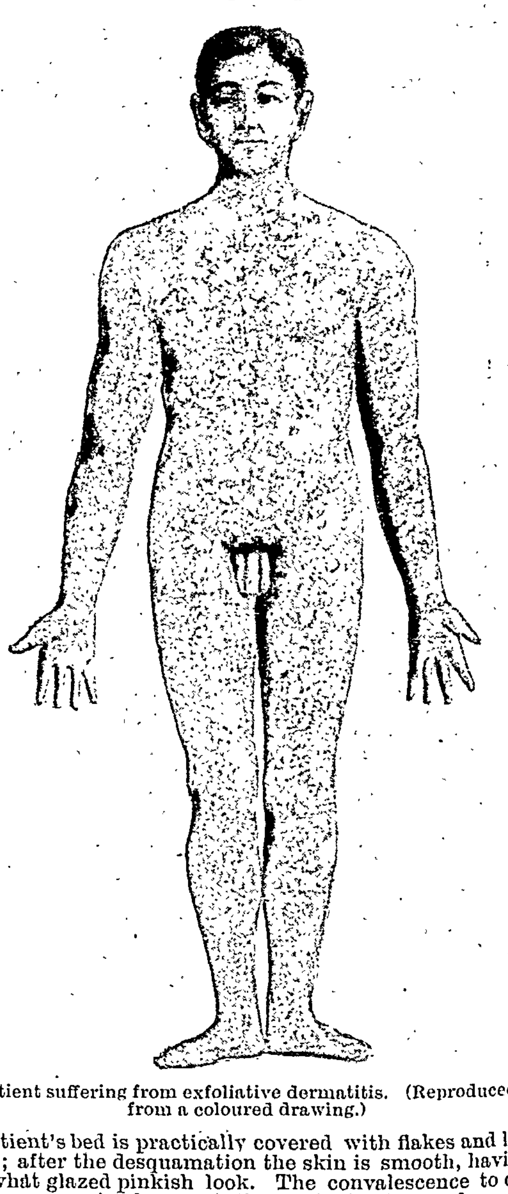
The erythematous condition in mild cases may be limited to a part of the body—for example, the neck or chest and abdomen. In severe cases it spreads over the whole of the body, and if it then develops into exfoliative dermatitis a very severe condition has come about and the patient's life is in danger. Both these conditions come on at varying periods during the course of treatment. Some patients will develop severe dermatitis after the second injection of 0·6 g. N.A.B.; others later in the course. Sometimes it makes its appearance immediately after the course of seven weekly injections of 0·6 g. N.A.B. I have never seen it develop later than a month after completion of treatment.

During several years in India and London I saw only four cases of severe exfoliative, but during service in France I had some 20 cases under my supervision. I feel convinced that the majority of these cases were due to exposure to cold. The conditions could not be as comfortable as in hospitals at home and the patients were less protected. Practically all the cases occurred during the winter months, and, morever, the fact that only two officers out of close on 2000 under treatment for syphilis developed severe dermatitis was significant. The officers had more comfortable accommodation and were able to go to a warm bed immediately after the injection and remain there for 24 hours. Although warm spring beds were provided for the soldiers for the first 24 hours after the injection, it was most difficult to keep them there owing to the large numbers undergoing treatment.

The Clinical Picture.

In severe exfoliative dermatitis the whole body is usually covered with a scarlatiniform rash, but somewhat darker in colour. This sometimes becomes confluent over parts of the body. Not infrequently small blebs make their appearance behind the ears and on the neck. Pustules and blebs form all over the body, and after these have ruptured crusting and scaling develop. Itching is very troublesome and becomes a burden to the patient. There is always a great deal of swelling of the face, involving the lips, nose, eyelids, ears, and cheeks. The conjunctivæ become very inflamed, lachrymation and photophobia being particularly troublesome. A weeping eczematous condition is nearly always present in some parts of the body, the ears, lips, axillæ, pubis, and scrotum being frequently affected in this way. The eyelids are very often so swollen that the patient is unable to see. The skin takes on a deep reddish-brown tint and there is a great deal of exfoliation of the epidermis subsequently. The weeping eczema and the presence of large pustules in various parts of the body, especially in the axillæ and groin, are two most distressing complications. When the acute stage is passed the skin is deeply pigmented and is harsh, thin, and atrophic. The scalp becomes swollen and eczematous, and settles down after a time with almost complete loss of hair, which grows again in the course of a few months. The eyelashes are frequently shed, but grow again. The soles and palms develop thick epidermic plates (hyperkeratosis), which are completely shed during convalescence; the nails also become affected. In a few cases there is high fever and headache, with diarrhœa, retching, and vomiting of bile-stained fluid. The patient usually looks and is very ill; the fauces are congested and the tongue is dry and brown. Owing to the loss of sleep due to the irritation of the skin condition and the toxic state of the patient his health becomes very much impaired, and he goes down hill rapidly. Œdema of the lungs and bronchopneumonia often complicate these cases and cause the fatalities.

In some of the severe cases the eruption is hæmorrhagic in several parts of the body. There is always marked general adenitis, and the glands, especially those of the axillæ, get very large, soft, and tender; not infrequently they break down. The urine nearly always contains a small amount of albumin. During the process of desquamation the patient's bed is practically covered with flakes and large scales; after the desquamation the skin is smooth, having a somewhat glazed pinkish look. The convalescence to complete recovery is slow, but the patient often makes rapid progress after the acute illness. As soon as the symptoms have subsided his appetite, which is very poor, improves markedly, and he begins to take an interest in himself. The depression, which is a characteristic feature, disappears and his general health steadily improves. After the desquamation is complete the patient is very much altered in appearance, and it is doubtful if his best friend would recognise him at first sight. However, after three or four months he regains nearly all his characteristics and looks like a normal individual again.



Patient suffering from exfoliative dermatitis. (Reproduced from a coloured drawing.)

Prognosis.

The prognosis is favourable when appropriate treatment is applied as soon as the condition is diagnosed. Lung complications not infrequently develop in spite of all precautions, and in these cases the prognosis is bad. It is my experience that the more severe is the skin affection the greater the internal complications, which put the patient in great peril of his life. Of the three cases who died with lung complications all had the most extensive and severe dermatitis imaginable The mild cases responded to intramine readily, and I have never seen any appreciable internal complications in any of them

Treatment

In cases where the *eruption is one of simple erythema—lotio calamine calamine cream and bran baths* Intramine I consider the best remedy, 2 5 c cm of intramine being given intramuscularly in the buttock in the same manner as an intramuscular injection of mercury This is repeated every fifth day until the disappearance of the erythema in simple cases or the exfoliation in severe cases In mild cases two doses will be sufficient, but in severe cases five to ten doses are often required I commenced the use of intramine in these cases in 1917 and have used it in every case since then At first Mr J E R McDonagh, who was then working in the same hospital and who introduced the drug to the profession advised the full dose of 5 c cm of the original preparation, but we found that this produced too much reaction and decided to make the dose 2 5 c cm After a little experience it was found that this dose produced little or no reaction, and could be given at intervals of five days without inconvenience to the patient After a time Mr McDonagh put up his *preparation in two separate tubes* which had to be mixed before injection For convenience I have been using 3 c cm of the mixture for each dose The drug acted quickly, producing most satisfactory results In some cases an appreciable amount of discomfort at the site of injection for 24 or 48 hours was noticed by the patient, and in nearly every case the temperature rose 2° and fell on the following morning, and did not rise again until the next dose was given It is thought that dermatitis is caused by *over-oxidation of the tissues of the body* by arsenic and as intramine acts as a reducing agent in the body it produces good and speedy results In those cases of generalised erythema with hyperpyrexia (105°) and headache venesection has proved most satisfactory and has aborted the severe symptoms From 10 to 15 ounces of blood should be withdrawn but, unfortunately, venesection does not prevent all cases from developing severe symptoms However it should always be carried out *as early as possible in these acute cases*

When the stage of pustular eruption develops ichthyol ointment 10 per cent , or lead and zinc paste, are very valuable applications, for the weeping eczematous condition calamine lotion, zinc oxide and starch lotion and zinc oxide ointment, at a later period, calamine powder is also useful For the conjunctivitis two or three drops of argyrol 25 per cent dropped into the eyes morning and evening effect a speedy cure Boric *lotion should be used after the argyrol Before the introduction of intramine the above local* remedies were the chief ones in use for treating cases of exfoliative dermatitis and recovery took many months Nowadays with the use of intramine an amino sulphur compound, they recover in one quarter of the time

The diet should consist of milk and soda plenty of barley water, milk puddings of all kinds Lime water should be added to the milk if *there is diarrhœa or digestive* disturbance Meat *meat* extracts, and *eggs* are contra indicated Tonics should be prescribed Further treatment with arsenic is commenced during the convalescent period, the patient by this time has desquamated, is feeling fairly well, and is able to walk about the ward Only half the original dose is administered weekly—namely 0 3 g N A B The patients invariably do well afterwards I have used all the arsenic preparations at different times but with the exception of four all the cases occurred in France where N A B was the preparation in use

Post mortem Findings of the Three Fatal Cases of Exfoliative Dermatitis

CASE 1 —Brain A little thickening of the pia at the vertex—otherwise normal Lungs Broncho-pneumonia right lower lobe otherwise œdema some small amount of pus in small tubes Heart 8½ oz small firm No V D H Kidneys 8¼ oz large flabby pale cortex not narrowed—much paler than the medulla Capsule strips with ease surface pale and smooth Large white kidney Spleen 8½ oz congested Spinal cord Normal Liver 52 oz pale fatty No subserous hæmorrhages Marked exfoliative dermatitis

CASE 2 —Skin Petechiæ Lungs Both lungs œdematous No consolidation Heart 10½ oz pale soft No V D H Liver 74½ oz large pale and a little fatty Spleen 9 oz not normally beyond its size Kidneys 6 and 6½ oz cortex streaked a little injected Cortex strips naturally surface smooth No subserous hæmorrhages Marked exfoliative dermatitis

CASE 3 —Skin Petechiæ Lungs Several infarcts in each with a little surrounding broncho-pneumonia and overlying pleurisy No fluid in pleura Subpleural petechiæ Heart 9½ oz dilated pale very soft No V D H Liver 59 oz somewhat fatty Spleen 7 oz not abnormal Kidneys 6 and 6¼ oz pale not swollen Capsule strips naturally Marked exfoliative dermatitis There was severe inflammation of the whole of the alimentary canal which prevented easy swallowing and digestion this patient had to be fed per *rectum a few days before his death* He was admitted suffering from severe secondary syphilis with involvement of the iris He did remarkably well until a few days after the completion of his course when dermatitis developed In spite of early treatment with intramine *he got rapidly worse*

The dermatitis in all three cases occurred within a month of completion of a course of moderate doses—viz , 0 6 g N A B *Cases 1 and 2 were readmitted suffering from* lung complications

TOXIC JAUNDICE

I am of opinion that there are certainly two types of jaundice occurring during the early stages of syphilis

First type —The jaundice not infrequently appears before treatment with arsenic There are some medical officers who persistently attribute every case of jaundice in syphilitics to arsenic compounds I have *seen those medical officers enter* a ward containing special cases and ask as they go up to the bedside of the patient with jaundice How many doses of "606 has this patient had? When told that the patient has not had any arsenic preparations, being only a recent arrival, they look astounded Having *treated venereal diseases for over* 20 years I have noticed *many* cases of *mild* jaundice in patients suffering from syphilis We always used to consider that syphilis caused the jaundice there being no specific arsenical preparations in those days to put the blame on Several cases have been noticed after the first two or three injections of arsenic This comparatively mild jaundice is no doubt, due to a widespread fatty degeneration of the liver cells caused by toxins of the *Treponema pallidum*

Second type —What is really arsenical jaundice comes on towards the end of the course of seven weekly injections of 0 6 g N A B In all probability it is due to the syphilitic degeneration of liver cells as well as to the toxic action of arsenic The jaundice is intense, the patients become seriously ill and the disease is very liable to end fatally unless prompt treatment is applied This type of jaundice is the result of an intense catarrh of the minute bile ducts *The colour of the skin and conjunctivæ is of* an intensely deep yellow—urine yellowish brown or dark brown stools very pale Fifteen cases of this toxic type came under my supervision from time to time, two of whom ended fatally

Treatment

In both the mild and severe cases I consider that intramine is the best remedy we have at our disposal It is given intramuscularly into the buttock and in doses of 3 c cm at intervals of five days In mild cases two doses are sufficient, but in the more severe cases as many as ten injections have *been given* I *believe I am right in saying that intramine* was first used in treating jaundice in 1917 at No 51 General Hospital Mr McDonagh and I decided to employ it in all cases suffering from jaundice Arsenical preparations in half the usual dose were given to the patient as soon as the jaundice cleared and were continued until the full amount of the course was completed Other remedies such as sodium sulphate calomel and bismuth and *soda* were also administered *The intramine in these* cases also acted as a reducing agent

Post mortem Findings of Two Cases of Toxic Jaundice

CASE 1 —Brain A little excess of cerebro spinal fluid and a smell *of acetone otherwise normal* Skull Shows irregular ossification Lungs Subpleural petechiæ and hæmorrhages a few interstitial hæmorrhages œdema no consolidation Heart 7 oz small subpericardial hæmorrhages Muscle not soft No V D H Liver 25 *oz* very small brownish with many slightly raised greenish areas these are found on section to blend and occupy large areas of the total liver Spleen 7½ oz , large soft, and pale Structure not recognisable Kidneys 4¾ and 5 oz , yellow and swollen cortex Kidney as a whole is small Capsule strips naturally Stomach Submucous hæmorrhages also hæmorrhages in omentum and behind peritoneum of posterior abdominal wall A subserous hæmorrhage *in the ileum* Sir John Rose Bradford the consulting physician of the area witnessed the post mortem examination and expressed the opinion that the condition of the liver was not true yellow atrophy The above was a case of a *congenital syphilitic showing bossing of the skull and saddle-back nose who developed a typical syphilitic* chancre after exposure On account of his very light weight he was only given 0 45 g doses of N A B and developed his jaundice after the *fourth injection* Intramine *was given but had no* appreciable effect

CASE 2 —Brain normal Heart 8½ oz subpericardial hæmorrhages No V D H Lungs Œdema in both hæmorrhages into the subpleura Liver 27 oz very small brownish in appearance with greenish areas similar to first case Spleen 7 oz somewhat pale and soft structure becoming unrecognisable Kidneys 5 and 5½ oz , cortex swollen and pale capsule not adherent Stomach Hæmorrhages behind the peritoneum of posterior *abdominal wall* submucous hæmorrhages Jaundice appeared after the sixth injection of 0 6 g N A B

The post mortem examinations were carried out by Dr. T H G Shore, then pathologist Etaples Area, France

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INFLUENZA OUTBREAK AT SIMLA —With the sudden advent of warmer weather, influenza which has been smouldering for some time past has now broken out somewhat acutely The Indian quarters are most affected Influenza has appeared also in the neighbouring States where *the mortality rate is considerable* The local authorities have *issued a notice inviting attention to methods of prophylaxis*

AGGLUTINATION EXPERIMENTS WITH TRENCH FEVER RICKETTSIA.

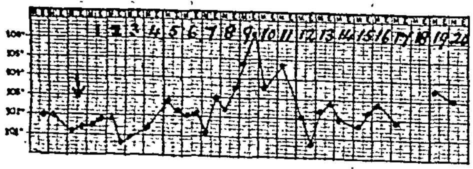
BY J. C. G. LEDINGHAM, C.M.G., D.SC., M.B.
(*From the Lister Institute, London.*)

ON my return from service in May, 1919, I was requested by Sir David Bruce, Chairman of the War Office Trench Fever Committee, to give some assistance in connexion with this inquiry. I proposed to take up the question of the transmissibility of the trench fever virus to laboratory animals. Experiments with this object had, in the hands of previous workers been attended with complete failure to demonstrate any unequivocal pyrexial phase commencing after a definite incubation period. I may say at once that my own experiments with rabbits and guinea-pigs inoculated either with trench fever blood supplied by infected volunteers at the New End Military Hospital or with infective lice excreta, proved in the main negative, in so far as the onset of a definite febrile phase following a definite incubation period was concerned. In a few instances, however, a striking pyrexial phase did intervene after a definite apyrexial period, and while I am fully cognisant of the difficulty of interpreting temperature charts in small animals, where pyrexial phases only are available as evidence of successful infection, the charts in the few cases mentioned were, in my opinion, strongly suggestive of a successful transmission of the virus. The chart of one of these apparently successful inoculations in the rabbit is appended for reference, while the general question of the transmissibility of trench fever virus to animals is postponed to a later period when further evidence may have accumulated. It is, of course, obvious that until we find some susceptible laboratory animal further research into the nature and properties of the virus will be greatly hampered.

The protocol of the experimental rabbit whose chart is attached was as follows:—

Rabbit. Weight, 980 g. Inoculated August 13th, 1919, intravenously with a saline emulsion containing 3 mg. of infective lice excreta. (Three other rabbits, each of which received the same dose at the same time, showed no definite pyrexial phase.) On August 22nd, when the fever had reached its height, blood was taken for a passage experiment, but the two animals inoculated intravenously therewith showed no definite pyrexial phase. Some guinea-pig charts are also appended below.

CHART 1.



Rabbit. Received lice excreta intravenously on day indicated by arrow.

Agglutination of Rickettsia.

While such experiments were in progress, it was considered desirable to ascertain whether the sera of animals which had received inoculations of infective lice excreta in saline emulsion showed any immunity reaction in test-tube experiments when brought in contact with such emulsions. If it could be shown that the rickettsia present in such emulsions were agglutinable by the sera of animals inoculated with infective lice excreta, whether a definite fever resulted or not, the evidence would certainly be of value in bringing the rickettsia into line with other formed micro-organismal bodies in the matter of the ordinary physiological immunity responses.

So long ago as 1909 Ricketts[1] was able to demonstrate that the rickettsia bodies contained in saline emulsions of the crushed eggs of the *Dermacentor* responsible for the transmission of Rocky Mountain spotted fever were agglutinated not only by the sera of guinea-pigs after recovery from a tick infection, but also by sera obtained from human cases.

His emulsion for agglutination purposes was prepared by crushing 40 to 50 eggs of *Dermacentor* in 0·05 c.cm. of salt solution. Hanging drops were prepared, and after two hours' incubation the drops were dried, fixed in absolute alcohol, and stained. With the sera of three recovered guinea-pigs agglutination occurred in dilutions up to 1 in 160, while normal guinea-pig sera produced only slight agglutination in dilutions up to 1 in 10. The three human sera tested had been kept for varying periods in the cold room, and while inhibition zone phenomena were manifested, agglutination of rickettsia was evident in dilutions varying from 1 in 40 to 1 in 200. Normal human sera, on the other hand, did not agglutinate the rickettsia in such emulsions in dilutions higher than 1 in 10.

Otto and Dietrich[2] have also during the late war obtained evidence of the agglutinability of typhus fever rickettsia present in the intestinal contents of infected lice by the sera of immunised rabbits and of typhus patients.

The intestinal contents of the infected lice were repeatedly washed and shaken and finally passed through a hardened filter. By this means a homogeneous emulsion of rickettsia was obtained. The results were read under dark-ground illumination. The sera of rabbits immunised with intestinal contents of infected lice (1 in 2 to 4 lice at intervals of 3–5 days) acquired a titre of 1 in 200. Data are also recorded with the sera of two typhus cases, one of which agglutinated rickettsia completely (++++) in a dilution of 1 in 50 and definitely (++) in 1 in 100, while the other gave a (++) reaction at 1 in 50 and a (+) reaction at 1 in 100. Of the control human samples tested they observed that the sera of two Volhynian fever convalescents gave some agglutination (++) at 1 in 50, but little or none at 1 in 100.

Agglutination of Trench Fever Rickettsia.

Preparation of emulsion of rickettsia.—About 10–20 mg. of the dry lice excreta supplied to me by Mr. A. W. Bacot and Dr. J. A. Arkwright from lice fed on experimentally infected trench fever patients at the New End Military Hospital were ground up very thoroughly in an agate mortar with saline containing 1 in 500 formalin. The excreta were simply moistened with the saline at first and with the mortar converted to a thick brown ropy mass. More saline was added gradually and the material thoroughly emulsified. The volume was then made up to 10 c.cm. according to the richness of the original material in rickettsia bodies. On standing a brown precipitate falls very rapidly, and the process may be hastened by centrifuging for a few minutes. The supernatant portion is a brownish-yellow opalescent fluid which should contain no gross particulate matter visible to the naked eye. A drop of this fluid when evaporated and appropriately stained should show the rickettsia bodies standing out clear and discrete, without trace of clumps, on a clear background.

Technique of agglutination test.—Having secured a satisfactory emulsion of rickettsia one prepares dilutions of the sera to be tested, which are then mixed in equal parts with the rickettsia emulsion (generally one drop of each from a dropping pipette either in dwarf test-tubes or in hanging drops in a moist chamber) and placed in the incubator at 37°C. for at least four hours. After incubation a drop from each tube is placed on a slide and allowed to evaporate on the top of a copper paraffin oven (at 50–60°). The slide is then placed for half an hour in an acid alcohol bath (1 per cent. HCl in abs. alc.), washed in running tap-water for at least ten minutes, and finally stained in the inverted position in a Giemsa bath containing one drop of the fluid stain to 1 c.cm. of a mixture in equal parts of tap and distilled water. The staining should be prolonged for at least 18 hours.

This modified Giemsa technique, for which I am indebted to Dr. Arkwright, proved far superior to that which I had originally employed in demonstrating discrete or clumped rickettsia in evaporated drops. By the use of acid alcohol fixation, followed by thorough washing, much of the protein precipitate, whether coming from the lice excreta emulsion or from the agglutinating serum, was got rid of, while the rickettsia stood out brilliantly defined on a clear background.

Results.

The first test to determine whether rickettsia could be made to agglutinate at all was made on August 25th, 1919, with the following sera:—

(1) Four rabbit sera taken on the twelfth day after inoculation with lice excreta. The chart of one of these is shown above.

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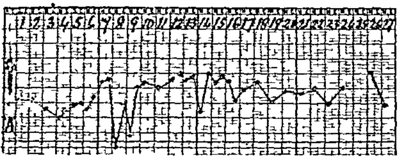
[1] Ricketts, H. T.: Journ. Amer. Med. Assoc., 1909, lii., 379.

[2] Otto, R., u. Dietrich: Deutsch. med. Woch., 1917, 577.

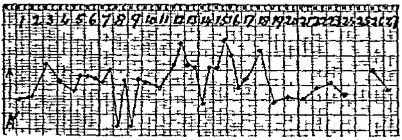
(2) Serum of Guinea pig A on the nineteenth day after inoculation intraperitoneally with lice excreta. The temperature chart of this animal is attached along with that of another guinea pig (A') inoculated similarly on the same day (August 6th). These two charts are strikingly similar and both present a saddle back effect with collapse readings between the seventh and tenth days.

CHART 2



Guinea pig A Received lice excreta intraperitoneally on day indicated by arrow

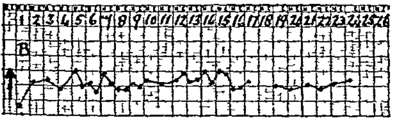
CHART 3



Guinea pig A' Received lice excreta intraperitoneally on day indicated by arrow

(3) Serum of Guinea pig B on the nineteenth day after subcutaneous inoculation with lice excreta. Annexed temperature chart showed little oscillation.

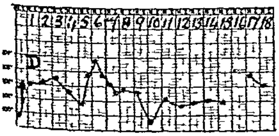
CHART 4



Guinea pig B Received lice excreta subcutaneously on day indicated by arrow

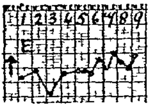
(4) Serum of Guinea pig C on nineteenth day after intraperitoneal inoculation with lice excreta. Temperature chart showed no oscillations.

CHART 5



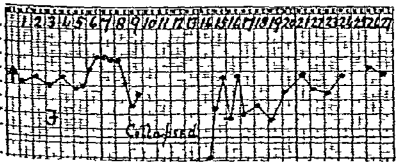
Guinea pig D Inoculated on day indicated by arrow with blood from E (Intraperitoneal.)

CHART 6



Guinea pig E Received lice excreta intraperitoneally on day indicated by arrow. Killed on ninth day. Blood passaged to D.

CHART 7



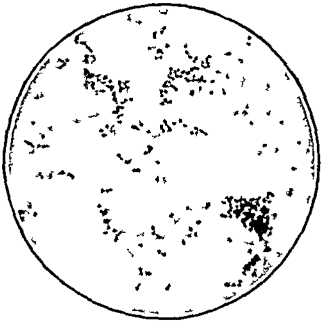
Guinea pig F Received lice excreta intraperitoneally on day indicated by arrow

(5) Serum of Guinea pig D taken on the tenth day after intraperitoneal inoculation with blood from Guinea pig E. This latter animal was killed on the ninth day after intraperitoneal inoculation with lice excreta in order to provide blood for passage experiment. Another animal Guinea pig F which received the same dose as Guinea pig E on the same day, showed a striking chart which is reproduced along with those of D and E. Guinea pig F was in a state of collapse for four or five days following the first febrile phase which commenced on the sixth day after inoculation. During the collapse phase, when subnormal temperatures were registered all the abdominal hair came away.

All the above sera were tested in dilution of 1 in 10, and two normal guinea pig sera and two normal rabbit sera were used as controls. Complete agglutination of rickettsia took place with the four experimental rabbit sera and with Guinea pig A. The other guinea pig sera produced practically no agglutination or, at the most minute clumps while the films prepared from the control sera showed absolutely discrete unclumped rickettsia.

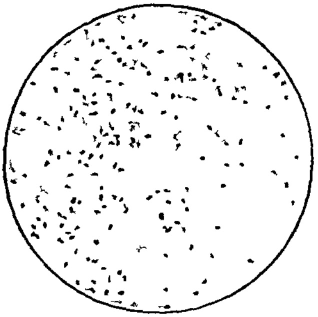
The experiment was repeated on several occasions in the case of the rabbit series and agglutination was found to disappear beyond a dilution of 1 in 40.

FIG. A.



Agglutination of trench fever rickettsia by immune serum (× 2000)

FIG. B.



Control emulsion of unclumped rickettsia (× 2000)

The question then arose whether a reaction of this kind could be explained as a non specific agglutination of rickettsia occurring in the course of the interaction of immune serum with the louse protein matter contained in the emulsions with which the animals were inoculated. To settle this point two rabbits were immunised with lice excreta containing rickettsia and two with normal lice excreta. Three injections were given on Sept 4th, Oct 27th, and Oct 31st, about 10 mg being the dose on each occasion. The animals were bled on Nov 6th and the sera titrated, with the result that the sera of the animals inoculated with the infective lice excreta agglutinated rickettsia in so high a dilution as 1 in 300, while those immunised with the excreta of normal lice gave mere traces of agglutination at 1 in 5.

The annexed micro photographs for which I am indebted to Dr Duncan Reid, show the appearance of rickettsia when clumped in the presence of immune serum and in the control unclumped state (magnification 2000).

Owing to the apparent disappearance of trench fever it has not been possible so far to obtain samples of blood from recent cases in order to ascertain whether the reaction possesses a diagnostic value. The only material available has been derived from old cases of 6-12-18 months' standing with symptoms of "chronic" trench fever. For this material I am indebted to Dr. J. L. Dimond at the New End Hospital. None of these cases gave a reaction even in 1 in 5 dilution. Further data, however, may be obtained from the investigation on serological lines of experimentally infected volunteers, and more especially passage cases inoculated with infective blood.

Summary.

(1) Experiments (about 50 in all) undertaken with the object of transmitting trench fever virus to laboratory animals proved in the main negative. A very small minority of inoculated rabbits and guinea-pigs, however, exhibited temperature charts which at least suggested a successful transmission of the virus. The question must for the present remain undecided, but it is probable that a certain small percentage of normal rabbits and guinea-pigs may be susceptible to the virus.

(2) In the course of the work it was established that the rickettsia bodies present in the excreta of lice fed on trench fever patients are agglutinated in the presence of immune serum obtained from animals immunised with infective lice excreta.

(3) Trench fever rickettsia are not agglutinated by the serum of animals immunised with the excreta of normal uninfected lice.

THE VALUE OF POSTURE IN THE AFTER-TREATMENT OF "STIFF-SHOULDER."

BY CHARLES MACKAY, M.D. MELB.,

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WHETHER the disability be caused by a compound or simple fracture in the neighbourhood of the joint, by a severe dislocation, by a primary weakness of muscle through injury of the nerve-supply to the deltoid, trapezius, serratus magnus, or by secondary muscle-wasting, a not infrequent result of injury to the shoulder is the so-called "stiff-shoulder."

A criterion of the functional result following treatment of an injury of this character would be evidenced by the ability of the patient when standing up, firstly to abduct the arm to a right angle, on a horizontal plane with the shoulder, then to rotate the arm externally, and finally to raise it vertically above the head. These movements, so apparently simple in health, are very easily lost; their mechanism is delicate and complicated, and a loss of function of one of its component elements may be sufficient to nullify the activity of the remainder.

The expression "stiff-shoulder" is used in this article to mean one at which the greater part of this normal range of voluntary movement is not obtainable; in which attempts at passive movement apparently produce pain, are resented by the patient, and are often voluntarily resisted. It is not intended to apply to old cases of rheumatoid arthritis, nor to the pathological conditions subsequent to severe injuries and acute inflammatory mischief in the joint itself, with the formation of definite articular adhesions and osteo-arthritic changes limiting movement. In the type of "stiff-shoulder" which is here referred to the main causative factors interfering with normal function are considered to be the weakness of the muscles which abduct, externally rotate, and elevate the arm, and in a percentage of cases the chronic contraction with shortening of the muscles which adduct and internally rotate the limb. Additional factors in some cases are the presence of periarticular adhesions in the surrounding structures of the joint, causing pain on movement, and, what is often very important, the persistence of a hysterical element, the result of prolonged disuse and previous painful experiences.

A disablement of this description which has existed for any length of time presents a difficult and often very unsatisfactory subject for treatment; it is accompanied by an amount of muscle-wasting and loss of function which seems to be out of proportion to the extent of the original injury. The usual history in this type of case is that of an accidental injury to the shoulder some months previously, treated by flexion of the arm, which was bound to the side. Subsequently difficulty was experienced in getting the arm away from the side and above the head; this has persisted in spite of treatment by massage, electricity, and movement of the arm under an anæsthetic. The patient complains that the arm is painful when movement is attempted and is practically useless; on inquiry it is found that no abduction arm-splint has been worn, and that no attempt has been made to minimise the effect of gravity or gradually to restore function in the horizontal posture.

The Mental Element.

In many cases of weakness of the muscles of the shoulder-girdle I have found what one might call a definite mental element in the disability; in some patients this is manifested by the adoption of an anxious resistive attitude, and in others of a passive apathetic one. In whatever way this condition is exemplified, however, the result is that the disability is exaggerated, and the difficulties of treatment correspondingly increased.

The treatment of the original injury will necessarily be surgical, and will probably entail a varying period of immobilisation on some form of retentive apparatus. To facilitate early recovery of abduction and elevation an abduction rectangular arm-splint of some kind should be used whenever possible. Todd, speaking of the present after-treatment of dislocations of the shoulder by fixation of the arm to the side, condemns it as being irrational, unscientific, and in actual practice unsuccessful.

In my opinion the best type of abduction arm-splint is the one described and illustrated by Dr. W. Colin Mackenzie in the *British Medical Journal* of Feb. 24th, 1917, and stated to have been introduced by him in 1908. This splint should be made for the individual patient, and it can be adjusted and modified to suit varying types of shoulder injury; its obvious advantages are its ease of application and removal, with the constant support which it gives to the muscles of the shoulder-girdle. When immobilisation is completed the difficulties of the after-treatment will greatly depend upon whether a suitable abduction arm-splint has been worn or not. In the former case recovery of movement may be rapid and comparatively easy, in the latter correspondingly slow and difficult. One of the reasons for this striking difference is that the splint will have prevented any contraction and shortening of the adductor and internal rotator group of muscles, while at the same time resting without stretching their important opponents.

Gravity an Important Factor.

In treating the original injury and in attempting to regain movement at the shoulder-joint it is all-essential to recognise the very important part played by gravity. Text-books do not lay sufficient stress on this factor, and it is apt to be forgotten that the weight of a muscular arm may be from 10 to 14 lb. If after an injury to the joint or its neighbourhood the arm be left mainly unsupported as regards its own weight, the constant dragging pull exerted by gravity will greatly aggravate any reflex atrophy of the shoulder-girdle muscles; this condition may become so marked in old cases as to produce a sub-luxation of the humerus. In this connexion it is important to lay stress on the point that muscles, not ligaments, are the primary supporting structures of a joint such as the shoulder. The deltoid muscle especially—one of the main supports of the shoulder-joint—has acquired a sinister reputation for rapid wasting which is unequalled by that of any other major muscle in the body.

In all injuries in this region an important point to remember is the preservation of the insertion of the deltoid; if this has been lost at the time of injury the resulting disability, as instanced by Bland-Sutton, will, in spite of any after-treatment, necessarily be very great. The deltoid and the trapezius are here regarded as the essential muscle factors in any attempt to regain movement at the shoulder-joint by rest and muscle re-education; one or other having been lost the utility of the arm is very greatly diminished. When the surgical condition of the injury allows of an attempt at movement the removal of the splint should be very carefully supervised, and the patient then made to lie flat on a wide couch—30 inches—with a low pillow under the head and neck.

The Essential Principle in Treatment.

The line of treatment here advocated is simple, and its very simplicity perhaps accounts for its comparative neglect; with personal modifications it follows the plan of muscle re-education advised by Dr. Colin Mackenzie in his recent work on the "Action of Muscles."

Its essential principle is to encourage any possible amount of voluntary movement and to treat the patient at the beginning in the lying-down horizontal position. This position helps considerably to eliminate two important factors retarding recovery of movement, gravity—the weight of the arm—and muscular spasm. It is necessary to obtain muscle relaxation before the attempt at voluntary movement is begun, and in the horizontal position this relaxation can be most easily obtained. With the elbow flexed and the forearm supported, the patient is then encouraged to abduct the arm farther and farther away from the side and afterwards gradually to elevate it. In order to facilitate movement in difficult cases cardboard powdered with chalk may be placed under the arm to diminish frictional resistance. These attempts to obtain voluntary movement should be carried out once, twice, or three times a day on a firm support, table or couch, and for a variable period depending on the weakness of the muscles and on the ability of the patient to concentrate his attention on the muscular effort involved. Once full abduction and elevation of the arm have been obtained in the lying-down horizontal position, it may be definitely stated that it is only a question of time before full movement will be obtained in the upright vertical position. This result, however, can only be achieved gradually, and progress is accomplished by slowly elevating the head and shoulders of the patient either on pillows or by means of a special couch. Each elevation is regarded as a stage in the re-education process, and perfection of movement must be obtained at any one stage before proceeding to the next highest one. Even if the difference in elevation be only a few inches, it may be too much at first for the weak muscles.

It is wise to begin each daily period of exercise in the horizontal position, and gradually to work upwards to the highest elevation previously reached. The muscles are by this means enabled to accommodate themselves to their load, better results are obtained, and initial disappointment to the patient is avoided.

Methods of Dealing with the Disablement.

In the old-standing type of stiff-shoulder the problem has to be approached in two ways: firstly, to gain the patient's confidence that curative, or rather ameliorative, procedures are possible; and secondly, to place the affected muscles during treatment in such a position that their work begins at a minimum. Mackenzie rather aptly calls this the zero position, and Professor Arthur Keith has named it the minimal load position. It may be stated that the patient's mind has to be stimulated as to the value of personal effort, and through his mind his muscles have to be re-educated to enable them to regain as much of their lost power and coördination as possible. Misdirected effort resulting in spasm must be constantly avoided, and in this field of activity there exists plenty of scope for both physical and psychical re-education. It is not pleasant to see the attempts which are sometimes made in these cases of stiff-shoulder to diagnose and treat the condition, the rough handling, the struggle between patient and surgeon, the abortive attempts at passive movement, the movement under an anæsthetic, and the last condition remaining sometimes worse than the first. To examine a wasted shoulder after months or years of massage, electricity, and passive movements, and to find almost total absence of voluntary movement with a partially subluxated head of the humerus is to realise the limitations in these cases of many of our modern methods of treatment.

While drawing attention to what is regarded as a serious omission in the routine treatment of these patients, it is not implied that in skilled hands successful results have not followed the combination of other methods, such as, for example, the electrical treatment so strongly advocated by Bristow. It is suggested, however, that more rapid and beneficial results would follow if this positional aid to treatment were more universally adopted. It would scarcely seem necessary to point out—if it were not such a frequent occurrence—that all attempts at after-treatment of a stiff-shoulder in the sitting or standing-up position with the arm hanging by the side are contra-indicated as tending to perpetuate the disability, and to discourage the patient from attempts at voluntary movement.

Conclusion.

During nearly five years' war service, and while serving on medical boards for the Ministry of Pensions, I have seen numerous cases of shoulder injury whose after-treatment had, in my opinion, been carried out without due attention to anatomical principles of muscle rest and muscle re-education. By the kindness of Sir Robert Jones I was enabled to see and treat many cases of this nature while in charge of the Muscle Re-education Department at Alder Hey Military Hospital, Liverpool. My belief in the efficacy of the method of treatment now formulated was definitely strengthened by the results obtained there. It is considered that if voluntary movement in a correct anatomical position could have been combined during the war with the massage, electricity, and passive movements so extensively practised, the resulting civil inefficiency and consequent list of pension recipients would have been considerably reduced.

That active movement leading directly to a gradual return of previous full working activities is the ideal aim of all forms of treatment in this class of case would sometimes appear to be forgotten; too much is often done for the patient, and he is allowed to do too little for himself. Where opposing muscles have become contracted and shortened, or where peri-articular adhesions of a minor degree have occurred in the surrounding structures, the patient's own vigorous volitional efforts are the best means of gradually stretching the contracted opponents or of breaking down the adhesions. The use of force and an anæsthetic may be essential if time is an element, and if painful passive and voluntary movements can afterwards be borne by the patient; but I believe that better results will be obtained if treatment on the lines above indicated can be gradually carried out. Once movements have been obtained in the lying down position and gradually increased these may be strengthened, and final complete mobility of the joint obtained, on the lines of the active gymnastic exercises ably carried out by Colonel H. E. Deane, R.A.M.C., at Croydon.

By means of this paper it is hoped that the value of early splinting of the arm in an abducted position with a recognition of the value of the horizontal posture as an aid to any form of treatment, may be fully realised, and some little advance be thus made in the treatment of a notoriously difficult condition. Evolution and the adoption of the upright attitude are responsible for more than one of our modern difficulties of treatment.

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RESIDENTIAL ANTE-NATAL AND POST-NATAL TREATMENT

AT THE LONDON LOCK HOSPITAL FOR WOMEN.

BY G. W. RUNDLE, L.R.C.P. & S. EDIN.,
HOUSE SURGEON, LONDON LOCK HOSPITAL FOR WOMEN.

OWING to the great importance of ante-natal and post-natal treatment and the interest attaching to the excellent results which have been obtained at the London Lock Hospital for Women, I venture to submit this short communication on cases delivered during the last 21 months. There have been 168 pregnant women delivered in the hospital during the above period; of these 92 were cases of syphilis and 76 were cases of gonorrhœa.

Syphilis.

Of our 92 cases of syphilis 5 babies were stillborn and 9 died in the early weeks after birth, the remaining 78 doing excellently.

The syphilitic cases admitted can be divided into six classes: (1) cases admitted late in pregnancy with marked clinical signs of generalised syphilis; (2) cases admitted early in pregnancy with the clinical manifestations of generalised syphilis; (3) patients admitted early in pregnancy with a primary sore as the only sign and a negative Wassermann; (4) cases admitted late in pregnancy with a primary sore and a negative Wassermann; (5) cases who had had a full course of treatment before they became pregnant; (6) cases admitted with no clinical signs, only a history of miscarriages, and giving a positive Wassermann.

Our bad results, we found, all belonged to Class 1. The babies in all the other classes did splendidly. It is impossible to say how many of the children born alive were (1) healthy, (2) syphilitic, as the Wassermann reaction of the umbilical blood proved paradoxical, and that of the infants' blood was almost invariably negative a few days after birth. It was found, as Mr. J. E. R. McDonagh had previously shown, that the blood does not become positive much before symptoms appear.

The Treatment of the Mothers and Infants.

A few of the infants were premature and had to be reared in incubators. In the treatment of the mothers two facts stood out: (1) the excellent manner in which they withstood large doses of arsenic and mercury right up to full term, when these were indicated; (2) the extraordinary tonic effect of treatment. Although most of the women on admission had stomatitis, which was not infrequently aggravated by the arsenic and mercury used subsequently, it proved no bar to energetic treatment owing to the readiness with which it could be kept in check by intramine. It was found that one or two injections of intramine would permit of the assimilation of much more mercury; in some cases as much as 10 gr. of pil. hydrarg. were taken daily with impunity, though previously signs of intolerance to the drug had been manifest. Our successful results were, undoubtedly, in no little part due to the incorporation of intramine in the routine treatment.

The arsenical preparations used were neodiarsenol and novarsenobenzene.

The modes of mercurial administration were pills by mouth, intramuscular injections of mercury (grey oil), and cyanide of mercury intravenously. The last method was employed at Mr. J. Ernest Lane's suggestion. It is interesting to recall that Mr. Lane commenced using cyanide of mercury intravenously as long ago as 1896, during which year he administered over 1000 intravenous injections, using the concentrated method, in a 2·0 c.cm. syringe. Thus the intravenous administration of concentrated solutions is not as novel as it is usually thought to be.

The details of this mercury cyanide treatment are as follows:—

One intravenous injection of a 606 substitute and five intravenous injections of a 1 per cent. cyanide of mercury solution made with double distilled water are given weekly, the initial dose being 10 minims, and this is increased to 15 minims and then to 20 minims or more if the patient shows no signs of idiosyncrasy, such as abdominal pain; this occurred in only 3 per cent. of cases treated by this method. The injections are continued for a course of eight weeks, and then a month's rest is given before starting another course. If the patient gets gingivitis, or loses weight, appropriate intervals of rest are given.

The amount of the mercury cyanide tolerated varied very much, one patient of 9 st. weight could take 50 minims daily intravenously without ill-effects. It was owing to the tonic effect of the treatment on the mothers that Mr. Charles Gibbs urged that the infants should be suckled whilst the mothers had a course of 914. The infants were placed to the breast immediately after the mother had her injections. This proved an enormous success; the infants' progress was better than when they themselves had intramuscular or intravenous injections of 914. If for any reason a mother could not suckle her baby novarsenobenzene was given intravenously to the infant.

A word about intravenous injections may be of interest. The external jugular vein was the site chosen; this vein, as Mr. Gibbs has often shown at his demonstrations at the London Lock Hospital, is generally to be preferred to the scalp veins or the superior longitudinal sinus through the anterior fontanelle. The child is placed in the horizontal position, its head rotated to one side and firmly held by an assistant; when the child cries the vein distends, and the needle point is then inserted. This site is convenient also for taking blood for Wassermann tests.

As to dosage of 914, Mr. McDonagh's standard for infants of a milligramme per pound weight was the initial dose used; this dose was increased as the child advanced in weight. Four premature infants were successfully reared in our electrical incubators, one baby weighing only 3½ lb. when born. The infants were fed on the four-hourly system—that is, five feeds in the 24 hours—and an eight hours' rest at night for both mother and child; the mothers thus got their natural sleep, and so secreted more milk.

At first there was some difficulty in getting the mothers to feed their babies, which, being in many cases illegitimate, were looked upon as encumbrances, but owing to the foresight of Mr. Gibbs prizes were offered periodically to the mother whose baby put on most weight. This competition quickly produced the desired results. When a mother left the hospital she was requested to report immediately she became pregnant again, as it has been found that the birth of a healthy child can only be guaranteed if the mother is treated throughout each succeeding pregnancy.

Our experience is that if syphilitic pregnant women would come up for treatment early enough 100 per cent. of the children would be born alive.

Gonorrhœa.

Considering how profuse was the discharge in most of the gonorrhœa cases treated and delivered in the hospital it is surprising that no complication, beyond an abscess in Bartholin's gland, was met with; pregnancy might have acted as a safeguard, but much of the success was undoubtedly due to the regular douching and swabbing out with Milton, recommended by Mr. Lane. This preparation is a strongly hypertonic saline solution, containing free hypochlorous acid in unusually high proportions; it is non-toxic to the tissues, and is a rapid solvent of pus and mucus. We use it, a tablespoonful to a pint, as a vaginal douche, and half a teaspoonful to a pint for bladder and urethral irrigations in cases of urethritis; we use it also (strength 1 in 10) for irrigating Bartholin abscesses and buboes after incision with most gratifying results.

It is most satisfactory to report that not a single case of ophthalmia neonatorum has occurred in the cases born in hospital, a result which redounds to the credit of the nursing staff. The moment an infant is born its eyes are washed with a 1 per cent. solution of silver nitrate, and if the eyes appear to be a little inflamed a day or two later collosol argentum (1 in 2000) is used as an eye douche, as it is less irritating than silver nitrate.

Collosol argentum is, in our experience, the best local remedy for cases admitted with gonorrhœal ophthalmia.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL

CASE OF TUMOUR OF MESENTERY.

By J. K. Haworth, M.D., B S. Durh ,

RESIDENT MEDICAL OFFICER, ROYAL VICTORIA INFIRMARY, NEWCASTLE ON-TYNE , LATE CAPTAIN R A M C S R LATE SURGEON SPECIALIST EIGHTH LUCKNOW DIVISION

THIS case, I think, sheds a little more light on the interesting and rare conditions of mesenteric tumour

While doing duty as surgical specialist to 8th Lucknow Division, Rifleman H G , 1st Garrison Battalion, Royal Irish Rifles, aged 28 years, was sent to me from Cawnpore on August 12th, 1917, with a lump in his abdomen He had very few symptoms, but the presence of this tumour seemed to worry him On examination he was found to have a tumour about the size of a large tangerine orange, situated in the right iliac region, below and to the right of the umbilicus , it felt hard and circumscribed, and it was movable all over the abdomen He had no difficulty with his bowels, and apart from his tumour he felt fairly well A diagnosis of mesenteric cyst was made

Operation —The abdomen was opened by a vertical incision in the right semilunar line below the umbilicus over the tumour. A mass, yellow in colour, was seen in the mesentery rather nearer to its posterior than anterior attachment The cyst was in a favourable position with regard to vessels and was enucleated The mesentery was sutured and abdomen closed, other enlarged glands in the mesentery were felt and the case was considered to be tuberculous in origin On examination the tumour consisted of a thick firm homogeneous capsule containing semi solid caseous material and débris, no signs of any hairs or material suggesting a dermoid It was unilocular There was no minute pathological examination of the wall or contents Recovery was uneventful

My case is almost identical with the cases reported by Mr E L Pearce Gould,[1] except that I was able to make out other glands in the mesentery , this fact, I think, adds weight to Pearce Gould s supposition that these conditions are tuberculous in origin

THE BACTERIOLOGY OF COLITIS.

METHOD OF INVESTIGATION FROM INTESTINAL MUCUS INSTEAD OF FÆCES

By H L. Lyon Smith, M.D Durh

THE presence of mucus in the stools is the chief point in the diagnosis of colitis, as mucus is not a normal constituent of intestinal evacuations In taking the history of a case patients are usually found to be ignorant of the presence of mucus, with the exception of more severe cases where they have noticed slimy and abnormal motions The majority of physicians have been content to order a specimen of the fæces to be sent to the bacteriologist, who usually receives for examination purposes a small portion of a solid stool, from which he is expected to prepare a vaccine of the most conspicuous organisms It is the method which is required for distinguishing which foods have been digested or otherwise, but is too gross a one for the diagnosis of the bacterial factors in colitis The malady is not of the fæces, but of the intestinal mucous membrane, and the closer we get to the latter in our researches the more likely we are to discover the real nature of the pathogenic organisms concerned in the ætiology

The Method Described

It has been the practice of the writer for the last seven or eight years to ask the patient to have a Plombière douche and *from the* second washing flakes of mucus can be collected The rectum is first washed out with a pint of warm water and the fæcal discharge thus obtained *discarded* A second *irrigation is* then made with two or three pints of plain warm water slowly injected and allowed to remain in the intestines about six minutes whilst the patient turns from side to side in order to separate the adhering mucus This second wash-out is received *in a clean receptacle* and search is then made for flakes of mucus which are transferred to a sterile specimen bottle When received these flakes are poured out into a large Petri dish half full of sterile normal saline and examined against a black background *in order to obtain some* idea of the character of the mucus Under macroscopic examination these may be found in thin, pale brown soft flakes or, in other cases thick dark brown tenacious masses and in severe cases a complete *cast of the intestine may be found* To search for amœbæ, a portion of the membrane may be broken off and examined under a cover-glass on a warm slide Other fresh films are made and stained

Slide 1 —Stained by carbol thionin, which shows up clearly capsulated bacteria such as enterococci *B mucosus capsulatus* pneumococci or the longer chains of *Streptococcus mucosus capsulatus* It will also show if there are any ova of intestinal parasites

Slide 2 —Stained for T B

Slide 3 —Gram stained gives a differential estimation of the relative proportions of the Gram negative and Gram positive bacteria In most specimens of mucus from cases of colitis the latter exceed the former in numbers

For cultural purposes a small piece of the mucus is teased off with platinum needles put into a tube of sterile broth incubated at 37° for an hour then well shaken up and loops of this broth are subcultured on various media at the discretion of the worker The writer prefers to use (1) ordinary agar tubes, (2) glycerine agar (3) freshly made blood agar tubes (4) bile salt-agar plates, a very convenient preparation for making these being the Solmedia preparation of MacConkey s bile salt agar issued by Baird and Tatlock

The freshly made blood agar media enable one to pick out those small powerfully hæmolysing colonies of streptococci which are *extremely pathogenic and frequently the chief causes of dangerous* anæmias In one case of pernicious anæmia accompanied by colitis a vaccine of hæmolytic streptococci was the principal constituent of an antigen which proved most effective as shown by *the differential blood counts This occurred three years ago* and the patient is still in good health

The advantages of this method of examination over that in general use—namely, investigation of the solid fæces—must be evident, as it is possible for the bulk of the fæces to be evacuated without having ever been in contact with the inflamed intestinal walls, so that the pathogenic organisms responsible for the colitis may easily escape detection

A CASE OF FATAL INTERNAL LACERATIONS WITHOUT EXTERNAL WOUNDS.

By Walter E. Masters, M D. Brux , M R C S , L R C P

THE case here described is probably not unique, but it is significant that there should have been such severe internal injuries without as much as a bruise about the abdomen or chest , it is also remarkable that the boy should have lived for one and a half hours with the splenic vessels torn off

On April 19th, 1920, a healthy young adult African native fell down a mine shaft for a distance of 150 ft to the bottom He was brought to the Prestea Hospital and seen by me immediately, about half an hour after the injury He had a laceration of the dorsum of the left foot minor bruises of the legs, arms, and head of an insignificant nature Blood was *coming* from his penis, due to a rupture of the urethra near the prostate resulting from a blow on the scrotum during the fall The bladder was intact The foot wound was being dressed when the writer was suddenly called away The patient had said that he was not in much pain, and turned himself over while being dressed The writer returned in three quarters *of an hour and the boy* was dead having lived *for one and a half hours after the* injury

A post mortem examination was carried out There were no abrasions or bruises of any kind on the trunk, externally or internally On opening the abdomen three pints of red blood escaped The spleen four times its normal size, was badly lacerated near the hilum, the splenic vessels were completely *torn off*, but the spleen was not separated *from* its normal bed The cardiac end of the stomach was lacerated for four inches, and the stomach contents were free in the abdomen There was hæmorrhage into the pancreas and great omentum Death was due, of course to internal hæmorrhage

The rarity of the circumstances and the vitality of the subject seem to me to justify publication of the case

Prestea Gold Coast

ERRATA —In the article by Drs Dreyer and Burrell on the Vital Capacity Constants that appeared in our last issue some corrections arrived after we had gone to press On p 1213 near the middle of the first column "No 11 (see Table IIA)" should read "No 11 (see Table IB)", and the lines commencing *a few lines lower should read* (1) No 15 (2) No 55 (3) No 139, (4) No 157, (5) No 168 (6) No 176 (7) No 178, (8) No 196 (see tables), (9) No 115 (returned – 9 4 per cent early good case which did well) (10) No 164 (returned – 4 2 per cent a patient with indefinite signs and good condition, but in whom T B were found)

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[1] Brit Jour Surg , vol iii , No 9

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OBSTETRICS AND GYNÆCOLOGY.

A MEETING of this section of the Royal Society of Medicine was held on June 4th, Mr. **J. D. MALCOLM**, the President, being in the chair.

Traumatic Laceration of Pedicle of a Fibroid.

In the absence of Dr. **PHILIP TURNER** Dr. **HERBERT WILLIAMSON** read his communication on a case of Traumatic Laceration of the Pedicle of a Fibroid, following a bicycle accident. A woman fell off her bicycle on to her left hip, which was bruised, and she was taken home in a bath-chair. The following day she had a rising pulse; the abdomen was tumid, with dullness in the left flank, and a hard tumour was felt rising out of the pelvis in the mid line. The diagnosis made was intra-abdominal hæmorrhage, probably connected with a calcified fibroid, and a laparotomy was performed 24 hours after the fall. The abdomen was found full of clots and blood, and on raising a hard, calcified, pedunculated fibroid attached to the fundus of the uterus the pedicle was found to be torn and bleeding, and was removed. The bleeding of two small arteries was checked, and the wound in the fundus closed. The patient made an uninterrupted recovery.

Rupture of the Uterus.

Dr. **J. FORD ANDERSON** described a case of Rupture of the Uterus followed by Recovery.

Mrs. E., aged 33, a 4-para (one miscarriage), was sent to a maternity institution, in a collapsed condition and losing blood freely, by a doctor who had been called in and had found her in labour, with the feet of a fœtus of approximately four months presenting. He said that there had been no contraction of the uterus, but expression and traction had been used, and that after the easy removal of the fœtus he had discovered a tear of the cervix extending outwards on the left side. The doctor stated also that he had removed the placenta "with the fingers," and in doing this had found coils of intestine lying in the uterus. Dr. Ford Anderson saw the patient for the first time 14 hours after delivery, when she was still extremely collapsed, and on examination under anæsthesia he found a coil of intestine in the uterus and a transverse rupture 3 to 4 inches long at the fundus, quite independent of the tear of the cervix. Operation was deemed inadvisable in the patient's collapsed condition, so the bowel was replaced under anæsthesia, and, contraction of the lax uterus being stimulated by pressure on the fundus, the uterus was packed with sterilised gauze. Thirty hours afterwards the packing was changed, and 30 hours later the gauze was finally removed. The patient was given pituitrin, morphine, saline solution per rectum, and douches of 1 in 320 lysol, as well as oxygen inhalations. From the first there were swelling and tenderness in the left iliac region, and during the first few days the temperature varied from 103° to 104° F.; the lochia were fœtid. By the eighteenth day the cervical and uterine tears had healed and discharge had almost ceased; pyrexia and evidences of left pelvic cellulitis were still present, when, on the twenty-fifth day, the patient insisted on leaving hospital. A pelvic abscess afterwards had to be opened, but two months later she was completely well.

In Dr. Anderson's opinion convalescence would have been much speedier but for the cervical tear. He said that probably the majority of medical men would hold that in these cases operation offers the best prospect of cure, but it was not considered possible on account of the extremely bad condition of the patient, and the procedure adopted was carried out with but little hope of success. As a result of the present case, and after reading Dr. Herbert Spencer's account in the Obstetrical Society's Transactions for 1900 (Vol. XLII.) of four cases successfully treated by packing with iodoform gauze, Dr. Anderson was inclined to modify his views, and would be interested to know if Dr. Spencer still adheres to the opinion then expressed.

In the course of the discussion on Dr. Ford Anderson's paper Dr. **FLETCHER SHAW** recalled an article in which Dr. W. E. Fothergill had collected a series of cases of ruptured uteri at St. Mary's Hospital, Manchester, and had concluded that in general operation was advisable.

In his reply, Dr. **FORD ANDERSON** read a letter from Dr. Herbert Spencer expressing the opinion that rupture was usually best treated by packing, as the patients were as a rule too ill to stand a hysterectomy.

Dr. **W. FLETCHER SHAW** and Dr. **A. BURROWS** read a paper on

Wertheim's Hysterectomy for Advanced Carcinoma of the Cervix made Possible by the Use of Radium.

Dr. Fletcher Shaw said that the greatest advance hitherto made in the treatment of carcinoma of the cervix was the general adoption of Wertheim's operation in place of the old-fashioned vaginal or pan-hysterectomy. The next great advance was the discovery that radium acted beneficially on the growth. Although on some types of growth and in some situations radium had little effect, in carcinoma of the cervix its action was wonderful.

The first time he had the opportunity of observing this action was in 1914, when an inoperable growth of the cervix with a secondary pelvic mass the size of an orange, in a patient 53 years of age, yielded to radium treatment (three applications) in a remarkable manner. At the end of 12 months there was no growth or mass to be felt; her general condition had greatly improved and she was free from pain, but, unfortunately, the pelvic mass reformed and continued to grow in spite of further applications, and the patient died at the end of the second year. Since that time Dr. Burrows had treated a large number of cases with radium. A large percentage showed a temporary marked improvement, many even complete local disappearance, but in no case of Dr. Fletcher Shaw's had the improvement lasted for more than one year, even with repeated applications. However, the combined treatment by radium and subsequent operation had given good results. In an inoperable case seen by the speaker in November, 1916, the application of radium was advised as a palliative. Three months later, after two applications by Dr. Burrows, the cervix had contracted to little above normal size, had lost all friability, and did not appear to be fixed, so it was decided to attempt operation. The ureters were separated from the adjacent and partly surrounding hard tissue only with the greatest difficulty, since the growth had contracted down under the influence of radium into a smaller mass as hard as cartilage. Dr. Fletcher Shaw had last seen this patient over three years after the operation, and she was then very well, doing all her housework and putting on weight. When he first saw her he did not think she could live one year. Since that date he had operated upon 13 other patients with carcinoma of the cervix too advanced for operation when first seen, but apparently operable two months after the application of radium. In six of the cases he had to abandon the operation owing to the impossibility of separating the ureters or bladder from the hard tissue which had replaced the growth, but in the remaining seven cases he was able to do a complete radical operation.

Dr. Fletcher Shaw then gave details of these cases, all women over 38, of whom five were very well respectively 9 months, 14 months, 19 months, 2¾ years, and 3⅛ years after the operation. Unfortunately all these cases had been done during the war, and several of the specimens had been lost before examination. In case No. 7 no trace of malignant tissue could be found in the cervix, only in one of the glands removed with it. As all the cases were considered inoperable on first examination, the application of radium evidently definitely increased the operability.

Dr. **BURROWS** then read the part of the paper concerned with the methods employed at Manchester in radium treatment and with the estimation of the proportion of inoperable cases of carcinoma of the cervix likely to become operable after this treatment. Much depended upon the technique and the quantities of radium employed. Occasionally cases were rejected because they were too advanced, but their number was relatively small. The main points in treatment were that—

(1) Many tubes must be buried in the cervix and surrounding tissues; and (2) the largest possible dose must be employed. The large number of tubes (five or more) allow a big dose to be given with a minimum of local necrosis. Radium emanation tubes are small in bulk, and when screened by pointed tubes of platinum, the walls of which are 3/10 mm. thick, are easily pushed into place. Other metals are less convenient. Dr. Burrows usually placed a larger central silver screened tube up the cervical canal towards the upper end of the growth. No uniformly good results could, as a rule, be obtained by less than 120 mg. of radium metal, or milleaines of emanation, for 24 hours. Larger doses might be employed and, if

necessary, the time correspondingly reduced. Cautery and curettage were not necessary, but the growth must be cleaned as much as possible *before the treatment* and the part should be douched daily for six weeks after the treatment to prevent the formation of vaginal adhesions Recently Dr. Burrows had treated some cases by Viol's method (*burying and leaving in the cervix small unscreened* emanation tubes), but was not yet disposed to give a definite opinion upon the method, although it appeared to promise even better than the older ones When the question of operation *following radium treatment* had first been considered Dr Burrows was not using the present adequate dosage, but the following details of his first 150 cases in Manchester, the last application of radium to which was given early in 1917, would indicate in some degree the possibilities of increasing the number of operable cases of carcinoma of the cervix by radium

Group (*a*) —One has been well over four years Four have been *well between two and three years*

Group (*b*) —Eight cases were observed for periods of one to two years, during which they remained well but have not recently *reappeared for examination* Four cases similar to the last kept well from six to ten months

Group (*c*) —Thirty four did not return for examination after one treatment This commonly happens because the patients are free of all symptoms and think that they are cured

Group (*d*) —Forty four had signs of disease, but no symptoms for six months or more Five were operated upon by Dr Fletcher Shaw, and two by other surgeons

This gave a total of 102 cases accounted for The remaining 48 cases were benefited *imperfectly or for less periods than six* months, or not at all. Nearly half the cases reported as well at the end of the year in his annual reports recurred subsequently Dr Burrows emphasised the fact that all these cases before radium treatment were regarded as hopeless and inoperable He thought we might safely assume that groups (*a*) and (*b*) became operable, also, perhaps, 10 per cent of group (*d*), 7 of group (*d*) were actually operated upon, making up a total of 28, *or* nearly 20 per cent For the last 2½ years, with improved radium, methods he had been able to report 20 per cent of cases as being well at the end of the year Nearly all of these had clearly become operable in the hands of an experienced surgeon, and if for any special reason a few had not, the number would be more than made up by the improved cases, not included in the 20 per cent , in which the growth, though not completely atrophied, *had sufficiently* receded for operation to be performed. It would thus seem that 20 per cent of inoperable cases of carcinoma of the cervix of the uterus come within the range of surgery after *radium treatment*

Mr. COMYNS BERKELEY congratulated Dr. Fletcher Shaw and Dr. Burrows on their results He had had a large experience of radium treatment, but had found it difficult to follow up cases in London He found that a dose of 250 mg. relieved symptoms, and that the palpable growth disappeared, but the ultimate result was disappointing, as in most cases the growth recurred internally. In one case in which operation had been attempted and abandoned two applications of 250 mg. each had been given, and after two years no trace of growth could be seen, either locally or internally, when the abdomen was opened for the cure of a ventral hernia. Mr Berkeley confirmed the fact that the operation was very difficult after radium. He said that the duration of life after removal of the growth by operation was about three years in any case, so that as yet the effect of the radium was difficult to estimate

Dr. DRUMMOND ROBINSON quoted a satisfactory cure by radium only in a woman of 54, who had refused operation. He said that most of the satisfactory cases reported by the Radium Institute were women past the menopause. He asked for details of time of exposure, and whether Dr. Burrows considered that an expert radiologist only should use the treatment.

Dr. AMAND ROUTH congratulated the authors on such excellent team work. He recalled one case which he had treated at Charing Cross Hospital by a weak tube applied for 20 minutes twice a week —Mr W. GILLIATT asked whether the interval between applications and operation had a bearing on the difficulty of the latter. At the Middlesex Hospital *radium bromide, not the* metal itself, was in use —Mr. GORDON LEY suggested the intraperitoneal application of radium.—Dr. J. P. HEDLEY approved of radium if only as a palliative. On the advice of the Radium Institute he had removed some of the cervix so as to let the emanation get farther in.

In reply to Mr. BERKELEY, Dr. HEDLEY said he had no serious results, though in one or two cases he had had a small fistula or a leak through the bladder or ureter.

Dr. HERBERT WILLIAMSON agreed with Mr. Berkeley's views on the temporary value of radio therapy in these cases. He wondered whether too large doses were being used, and asked about the possibility of using sub lethal *doses sufficient to prevent reproduction* but not to kill the cell. He hoped a collective investigation would be undertaken on the subject.

The PRESIDENT asked Dr. Burrows for his views *on the possibility of harm resulting from radium* treatment

In reply, Dr. FLETCHER SHAW hoped that in time the *operative treatment of carcinoma of the cervix* would be supplanted altogether Concerning the time of interval, he considered that the operation only 24 hours after treatment would be less difficult than after two months

Dr. BURROWS said that radium should be put in and around the cervix and not in the middle of the tissues. He considered that if more than three applications were required the treatment would be a failure The time of exposure was fixed at 24 hours and the dosage was varied in screened treatments Weil, of New York, was using unscreened glass tubes left in the cervix If was difficult for an expert to say that he was *essential, but he deprecated the lack of* standardisation in the treatment used. Dr. Burrows gave various contra indications against the use of radium. A really satisfactory cure was only obtained when no induration was present round the growth. The risk of too early operation was that of sloughing. The therapeutic distance was actually about 1 cm only, and this was an argument *in favour of the use of many tubes* He had had no immediate bad results after the intra abdominal use of radium, and had commonly placed radium tubes adjacent to blood vessels with impunity As to the dangers of radio therapy, he had seen some bad fistulæ, but had also seen terrible results after unsuccessful *Wertheim operations*, and it must be remembered that the cases were considered hopeless to start with In women under 33 or 34 the results were not permanent. The question of sub lethal dosage was entirely theoretical at present

Mr. A. W. BOURNE described a case of

Spontaneous Rupture of the Uterus following Pituitrin

The patient was a 12 para whose last child was born two years ago *Labour started at* 4 A M *on* May *13th*, but pains were sluggish during the day, and in the afternoon a sedative was given on account of primary inertia At 9 P M the os was fully dilated, and the head was bulging the perineum, but as pains *seemed ineffectual* ½ *c cm* of pituitrin was given hypodermically No apparent progress was made till 10 P M , when the pains suddenly became extremely violent Just as the head was being born the patient suddenly gave a sharp cry and collapsed The head receded, pains ceased and the pulse was not perceptible Mr Bourne saw the patient first on admission to St Mary's Hospital, Paddington, at 11 P M , when she was still pulseless and *profoundly shocked*, with very slight hæmorrhage The abdomen was soft, rendering the palpation of the fœtal parts very easy, and fluid dullness rose high in the flanks After an intravenous injection of *gum*, ¼ *gr of morphia, and other restorative measures*, the pulse returned The head was perforated and removed by cutting through the neck It was in the permanent occipito posterior position, but small, and came away with ease, but it was not possible to extract the whole child by gentle traction A further sudden collapse ensued, and in spite of blood transfusion, carried out by Mr C. W G Bryan, the patient did not rally and died at 1 A M The post mortem showed the child's trunk and placenta free in the abdomen, with the uterus retracted behind it, and much free blood There was a tear *of* 7 *inches in the peritoneum of the anterior* leaflet of the broad ligament, opening up the utero vesical pouch anteriorly The rent in the uterine wall was 5 inches long, beginning at the left lateral wall of the lower segment and extending downwards and inwards to involve the cervix The bladder was uninjured

Mr. Bourne considered the case noteworthy on account of the rupture occurring in the absence of any obstruction whatever, after a sluggish and short labour, and when the head was in the act of being born

Dr. WILLIAMSON, Dr. FLETCHER SHAW, and Mr EARDLEY HOLLAND all quoted cases of ruptured uterus without obstruction, following the use of pituitrin before the birth of the child, and emphasised the danger of this procedure

Reviews and Notices of Books.

PELLAGRA.

By H. F. HARRIS, M.D., Atlanta. London and New York: The Macmillan Company. 1919. Pp. 421. 26s.

No one can open this book without being struck by the very large amount of correlated information it contains. It is not so much a record of original work as a résumé of the investigations of others up to recent date. The consistent aim of the author, as expressed in the preface, is to endeavour to state only what the facts seemed to warrant, and in doing so he has been actuated by a desire to arrive at the truth and to aid those who are interested in this most important subject. The historical account of pellagra for which the ancient literature, Spanish, French, and Italian, has been consulted, and especially that of its discovery and spread in the United States of America, is treated more fully than in any other work upon the same subject. It is stated, for instance, that insanity was unknown in the American negroes prior to the Civil War, and, since this race is known to be particularly attacked at the present day, it is assumed that they did not contract pellagra until the "sixties" of the last century.

The author's criticisms of the theories advanced and methods adopted by others are not always tempered with justice. This may be gathered from his scathing remarks upon the Pellagra Commission from this country under the leadership of Dr. L. W. Sambon, which did much to stimulate investigation upon the ætiology in 1910. It would have been acting much more in the spirit of the preface had the author laid stress upon the good work performed rather than drawn attention to the failures of this inquiry. In justice to Dr. Sambon and the late Dr. A. J. Chalmers, the remarks of Babes, of Bucharest, to the effect that "an English Commission, which had probably never before seen pellagra, on arriving in a region where the disease was common, and after seeing the pellagrins, and observing that there was a small gnat which produced a redness on the skin immediately after biting, promptly telegraphed to the world that the insect was the cause of pellagra," might well have been omitted. The same may be said of the strictures upon the work of Stannus upon pellagra in Nyasaland, in which grave doubts upon the correctness of the diagnosis are expressed on the grounds that the description does not tally with the author's own experience. In short, Dr. Harris confesses himself a confirmed zeist, and not open to consider the views of any other school of thought, for otherwise how account for the pseudonym *parapellagra*, in referring to the cases of "pellagra" without maize, described in the British Isles by Sambon, Chalmers, Hammond, Box, and others? Who, with an unbiased mind, after a study of the excellent photographs and paintings of these cases, could doubt that they represented undoubted examples of the disease?

But such being the author's views, it is not surprising that a full chapter is devoted to the history of maize; from this it appears that this cereal was originally an American plant and was given by the New World to the Old. In the year 1632 the first field of maize was planted in Italy, though it did not become a common food until the earlier years of the eighteenth century. The interval between its introduction and the first medical descriptions of the disease would appear to have been a very short one indeed. The possible connexion between the maize theory and the more recent views of protein starvation may be reconciled by the work of Rondoni, who has shown that the adrenals of animals fed on maize contain a much less active secretion than those of normal animals, and that adrenalin possesses the power of correcting the bad effects of a pure maize diet. As a supplement to the maize theory a very full account is given of the fungoid diseases which affect the corn cob, and it is noted that in Colombia a disease known as "pelatina," resulting in loss of hair, teeth, and nails, is due to the ingestion of the maize smut *Uredo maydis*.

The section dealing with the pathological anatomy, and especially the minute changes in the central nervous system, is treated with a wealth of detail; the same may be said to hold good of the account of the symptomatology, to which over 100 pages are devoted. Under the term *parapellagra* or *pseudo-pellagra* are included a number of indefinite conditions, such as alcoholic intoxications, those associated with physiological misery, and pellagra of the insane—dermal alterations in the insane, which have been regarded as of a pellagrous nature, mainly because no other more plausible explanation was forthcoming. The section on treatment is curt, mainly for the reason that good feeding forms the basis of all treatment.

The book contains a complete bibliography of over 1000 references, besides useful appendices dealing with the germination of Indian corn, the Austrian and Italian laws on bad maize, and the eradication of pellagra; it is illustrated by seven plates demonstrating the inflammation of mucous membranes, and the minute changes in the central nervous system. This monograph may be confidently recommended to workers along the indicated lines as sincere, comprehensive, and informatory.

X RAY PUBLICATIONS.

1. RADIOGRAPHY IN THE EXAMINATION OF THE LIVER, GALL-BLADDER, AND BILE-DUCTS. By ROBERT KNOX, M.D. London: William Heinemann. 1920. Pp. 64. 7s. 6d. 2. X RAY OBSERVATIONS FOR FOREIGN BODIES AND THEIR LOCALISATION. By Captain HAROLD C. GAGE, American Red Cross. Same publishers. 1920. Pp. 87. 6s. 3. THE SYSTEMATIC DEVELOPMENT OF X RAY PLATES AND FILMS. By LEHMAN WENDELL, B.Sc., D.D.S., University of Minnesota. London: Henry Kimpton. 1920. Pp. 78. 12s. 4. THE COOLIDGE TUBE: Its Scientific Applications, Medical and Industrial. By H. PILON, of Paris. London: Baillière, Tindall, and Cox. 1920. Pp. 59. 7s. 6d.

1. THIS is an excellent monograph on a difficult branch of radiography that is well worth the study of medical men generally as well as radiologists. It appeared originally as a series of articles in the *Archives of Radiology*, when we had occasion to refer to it, among others, in our periodical comments on that journal. Recent advances in technique have made it possible to gain reliable information from an examination of this region in a quite respectable proportion of cases, and Dr. Knox has rendered a good service in bringing the present position so clearly before us. Beginning with anatomical considerations, the author takes us through the pathology, experimental investigations, radiographic appearances, technique, differential diagnosis, ending with a record of cases and a résumé of the literature and general conclusions. One thing stands out clearly, and that is, that success is more or less directly dependent on powerful apparatus, perfect equipment, and very short exposures. Given these conditions, the X ray examination of this region passes into a new phase, with advantages to all concerned.

2. While the need for rapid and certain localisation of foreign bodies in the tissues is less pressing than it was not long ago, there are doubtless many radiologists and surgeons for whom the subject has a certain amount of fascination. The special feature of the method devised by Captain Gage is the provision of three intersecting lines which join three pairs of marks on the skin, and it is claimed that by these the position of the foreign body is more easily visualised than by any other system. Mechanical aids may be used also, but are seldom if ever necessary, and in his hands, at least, his own method has given an almost unbroken record of successful results. The system is worthy of attention by those interested in this branch of radiography.

3. If the information in this volume upon systematic development of plates was acted upon by those who carry on the dark-room manipulations, it is highly probable that there would be fewer occasions for "repeat" examinations, and, in addition, more com-

plete and satisfactory results altogether There is little doubt that in many instances this very important part of an X ray examination is not treated with the care and attention which are given to the exposure of the plate, and yet careless manipulation in development can nullify the most skilful technique on the part of the radiographer From the fact that this part of the work is often relegated to those whose knowledge of photography is limited, Dr Wendell strongly advocates the use of the tank or stand method of development as giving more certain results and being less influenced by the personal equation There is plenty of room for improvement in this branch of radiographic work, and Dr Wendell's monograph will be a real help in its indicated directions

4 This is a most useful book for all those engaged in the practical use of the X rays The resulting radiation from the Coolidge tube does not differ essentially from that in the older types, but the construction, management, and uses of the tube are so different and its possibilities so much greater, that even yet many of those who use a Coolidge tube for one purpose or another are only partially acquainted with its properties This book answers most, if not all, the questions that arise either within the operator's mind or from outside, and it will do much to popularise still further the use of one of the most important radiological discoveries of recent years The theoretical and practical aspects of the subject are dealt with clearly yet concisely and are well illustrated, drawings and diagrams being used where necessary The all important matter of the adequate protection of the operator receives its full measure of attention

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APPLIED ANATOMY AND KINESIOLOGY

Second edition By WILBUR PARDON BOWEN, M S, Professor of Physical Education, Michigan State Normal College Edited by Prof R TAIT MCKENZIE Philadelphia and New York Lea and Febiger 1919 Illustrated Pp 339

LITTLE can be learnt from most of the ordinary text books on anatomy concerning the action of muscles, although without this all other knowledge of them is well nigh useless The object of this volume is to supply practical information as to how the various movements of the body are performed Part I deals with the structure of muscles, their action as levers, and the mechanism of muscular control This is done in the simplest possible manner Parts II and III deal with the upper and lower limb respectively The movements of each joint are first considered, then the muscles controlling the movements are described in turn The origin and insertion are indicated rather than described, the structure occupies but few words, and no mention is made of relations or nerve supply The latter could be added with great advantage, particularly if traced back to the spinal nerve roots Posture, fundamental movements, and gymnastic movements are then dealt with in turn, the muscular action of each being fully described It is a pity, when using Swedish nomenclature, not to adhere more rigidly to the usual order of words "Raising arms forward," for example is a poor substitute for "Double Arm forward raise" The muscle action involved in games and sports affords most entertaining and instructive reading Defects of the foot are fully dealt with, though the essential necessity for training the quadriceps in the treatment of flat foot is overlooked Colin Mackenzie's description of muscle action is mentioned but passed over too lightly, Duchenne's teaching being accepted almost throughout Part IV deals with the muscles of the trunk, with breathing, and with defects of posture Part V describes team work among the muscles, and the muscular action in gymnastics, games, sports, and industrial occupations

The book throughout is well written in an interesting manner It is "applied anatomy" of the muscles, the application is given in essentially practical form, and should be invaluable to all those who propose to take any part in physical education or remedial work The illustrations are numerous and well reproduced It has been a source of regret to many who are interested in the working of the human frame that hitherto so little of interest has been written on the action of muscles Here, more fully than elsewhere, will the reader find food for thought Where else, for instance, will he find the solution to the problem, "What advantage is it to the washer woman to have the tub and board placed below the level of the hips? Above it? What determines the best height for it in any case?" This is a typical question taken from one of the tables of questions which appear at frequent intervals throughout the book

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JOURNALS

Journal of Industrial Hygiene London and New York Macmillan and Co 21s per annum —A number of articles in recent issues of this journal have dealt with the importance of the social side of industrial medicine Indeed nothing is more remarkable in the pages of this up to date publication than the social tone of its contents, in this respect it differs from other medical journals Nor is it to be wondered at, for nowhere does professional activity come more intimately in touch with the daily life of patients than where the environment of their occupations is in question Social unrest and industrial discontent are to be countered by reduction in labour turnover and prevention of over fatigue This review of the later numbers is in the nature of a running commentary upon the more conspicuous contents

In the December issue Mr C A *Lauffer* points out that there are two classes of health hazard in industry—one concerns each worker personally and the other the general community through the employer In the first class he groups hazards arising from (*a*) poisons, dusts, fumes gases (*b*) heat, humidity ventilation (*c*) lighting, (*d*) crowding and (*e*) accidents In the second (*a*) decreased production, (*b*) labour turnover (*c*) compensation expenditure He points out that medical care started at the factory must extend to the home

> An employee spends only eight or nine hours in industrial service in his home life community and social life during the other 15 or 16 hours of the day he likewise incurs health hazards The superior *lighting heating and ventilating systems installed in* many modern factories make these industrial plants more hygienic from a public health standpoint than the homes movie theatres and churches many of which are more crowded and worse ventilated To be consistent homes boarding houses hotels theatres clubs &c in *which employees spend more hours than in the factory* should be scrutinised and inspected as industrial plants now are in probing sources of health impairment and routes of infection from communicable diseases

The detection of early signs of diminished health and loss of tone can only be carried out through an industrial organisation with an effective clinic

> A worker who is constantly fatigued from any cause or any combination of causes will lose time now and then from sheer exhaustion *The fatigued worker is more susceptible to infectious diseases from* which he makes *a retarded recovery* he becomes more stupid and because less alert he more readily meets with accidental injury from which he recovers slowly since he has impaired vitality and we have injury plus sickness to deal with
>
> It naturally reverts to the *industrial clinic* to find out the *sources of fatigue* to evaluate the *factors* that contribute to the fatigue total and to facilitate the recovery of the individual in the manner indicated by the findings of the inquiry

The case thus set forth is followed up in the same number by Dr C D Selby, who calls for careful physical examination of applicants for work

> The most capable and dependable workmen are those who are healthy physically competent and are assigned to tasks they like and know how to do *rapidly and well* Men working under pleasant conditions void of undue fatigue and hazards to health and limb are the best producers and consequently the best paid are the most contented and valued of employees Industry is now striving to procure such workmen

Dr Selby then proceeds in the light of his own experience at Toledo Ohio, to describe how an initial physical examination should be *conducted* *His method is good and must go far to* reduce *labour turnover* *The same subject is also discussed* in the March issue by Dr Florence Meredith whose—

> examinations were *not for the purpose of turning down anyone* who was fit to work anywhere but were for the purpose of fitting any applicants even the physically handicapped into the work for which they were best adapted physically where they would injure themselves least possibly benefit themselves and continue to work longest *We did not turn down anyone fit to work at all*

She maintains further that "all medical work that is worth doing should *contribute to the sum total of scientific knowledge*" and tells how by a well thought out plan records of work can be classified at a glance Another purpose served is that of educating each worker as to how to maintain health, and for this purpose Dr Meredith holds that familiarity with factory processes is essential The industrial physician has a double duty, one to the applicant for work by warning the unfit and by informing the healthy, the second to society, and here success is lost "if he fails to build into it better units as the result of his work." Ideas on medical examinations are suitably checked by reference to a paper in the January issue by D. R. Kennedy and R. M. Nenstadt, who point out that industrial medicine must not deteriorate into a "society for the prevention of men earning a living," but must concern itself with improving personal hygiene by spreading health knowledge and with medical research.

> "The factories and the schools are the easiest and best centres through which the largest number of citizens can be reached, and therefore become not only the most important strategic point in any campaign of general education, but also the place where responsibility for such education and for remedial work becomes centred. ...... Industry, or rather the industrial organisation, cannot shirk its responsibility in public health save by defying and neglecting its clear duty as an organic constituent member of the public—a group citizen of the community."

Industrial medical service must be established by industry and given a position in each concern worthy of the work which needs the best of physicians and the best that is in them. The scope of work within the factory to maintain the health of an important productive group of citizens is extensive; but the capable physician—

> "will not confine himself to the four walls of his office, or even to the gates of the factory yard. He will, on the other hand, consider his company as but a unit in the community, and will tackle the social problems of the home, the school, and the streets with a realisation of their interdependency."

Two long articles appear in the numbers for February and March from the pen of Dr. Hans Zinsser, who summarises in a useful way the control of infectious diseases; the title adds "in industrial communities," but there is nothing in the articles in question which has a particular industrial bearing, unless we look upon every community to-day as an industrial unit. Nevertheless, the industrial surgeon, engrossed in his own work, will find here information which may be of use to him from time to time.—Quite different is Dr. A. C. Burnham's short but suggestive communication in the issue for May on surgery and increased production. Surgeons have previously taken comparatively little consideration of the element of time in the treatment of injury, or of the element of productive capacity. First, he calls for preventive surgery—i.e., accident prevention—then for skilled treatment at the earliest opportunity; last, for treatment directed to minimise the period of disability and to conserve industrial utility. He points out the need for functional re-education, a branch of surgery which the war has practically invented; and then of vocational education, where previous work cannot be resumed. The rehabilitation of the industrial cripple, who is always with us, is a social duty as important as that of helping the crippled soldier, though, and especially to-day, the element of public gratitude is less apparent. Through the restoration of the worker production may be increased and undeserved poverty decreased.

The journal continues to publish an excellent abstract of current literature dealing with industrial hygiene, which must bring to its readers the growing importance of this branch of medical work. It has now completed its first year of life, commencing a second volume with the May issue. The high standard aimed at has been so far fairly well maintained, but we note a tendency to publish short and somewhat fragmentary articles which do not contain new scientific facts, and at the best can only be looked upon as intended for propaganda.

Journal of the Royal Naval Medical Service. January and April, 1920.—During the war some 20,000 men of the navy became ineffective through disorders of psychology, and to the Naval Medical History of the War, Temporary Surgeon-Lieutenant Thomas Beaton, O.B.E., M.D., has contributed a very valuable paper discussing the nature, treatment, and prevention of their maladies, which were more numerous every year, and always increased most rapidly in summer when the menace of the submarine threatened most. These disorders are, Surgeon-Lieutenant Beaton considers, the outcome of the disturbance of the normal relation between the individual and his environment, and that this may be thoroughly comprehended his paper must be studied. But his analysis is so complete and interesting that it is expedient to attempt a brief summary.

Mental stress, if severe enough, results in disintegration of mind. Mental stress is set up by conflict in the mind, by emotion, or by exhaustion, separate or combined. By conflict; if action must be taken the nature of the action is a matter of choice. Ordinarily such a course is fairly easy, but at sea and in war the inherited, intuitional, and trained impulse to self-protection may have to be ignored, energy will be required to push that impulse aside, and in the mind there will be a persisting unsolved conflict that will cause stress. Emotion, as fear, joy, pity, energises the mind to do something; that emotion may have to be repressed, and in the process the mind may be decomposed. Exhaustion, where there is long-continued conflict or repressed emotion, always comes upon the mind, but it arrives sooner if the person is fatigued or debilitated. Conflict is diminished in the mind by education in conduct—i.e., habit formation—but landsmen joining the navy during war have to make a readjustment too puzzling, too overwhelming for some of them, who in the attempt may go mad. These failures can be prevented by careful selection of recruits of sufficient ability and character, as was attempted later in the war by the American naval physicians, by inciting the recruit to adapt himself, and by showing him how completely the nation's purpose in war is also his own ("propaganda"). Of the men who broke down, 75 per cent. were mentally unstable in their previous lives; we observe what expense might have been saved by employing trained psychologists on the weeding-out. The sailor's life being more monotonous than the soldiers makes mental failures more likely. Disorder of mental function is evidenced by alteration of conduct, and correct conduct can only be defined by comparison with its opposite, which makes a man a bad shipmate or a bad messmate. Good conduct must be chosen as the preferable course by the will of the subject, who is strengthened in his choice by the imminence of disciplinary rewards and punishments. So the mind may be overpowered and the person, who has now become irresponsible, acts automatically—i.e., unconsciously. All people of bad conduct must be removed from the ship; among them are some half-malingerers who get out of the strain a little easily, but if kept on board they become insane, and by their loss the service becomes more efficient. It is not always difficult to detect the malingerer, for he is anxious that his insanity shall be recognised; the real patient insists that he is all right.

The disorders that occur Surgeon-Lieutenant Beaton classifies as the psycho-neuroses in which auto-criticism exists and the patient knows there is something wrong, and the psychoses in which he is not aware of his plight. Their causes are three: actual exhaustion of the organism—the confusional states; persistence of the activity of the defence mechanisms; the anxiety neuroses which are partially readjusted, as in hysteria and shell shock. The degree of stress decides whether breakdown will occur; and Surgeon-Lieutenant Beaton holds that the variety of breakdown depended on the individual. There were some 11,000 cases of what was called neurasthenia, cases without local physical functional disability, not without auto-criticism. The name, in his view, made no imputation of insanity. Ninety-five per cent. were cases of anxiety neurosis, fear for oneself or for others involved with one, and for whom one was responsible. In the navy the incidence was wide; so many men have responsible jobs, small in themselves, yet essential in the functioning of the ship, that consequently men are as prone to develop this neurosis as officers. Officers suffer more in the army in comparison with the men. The anxiety, it was found by Surgeon-Lieutenant Beaton, might be outside the service, in relation perhaps to the family. One per cent. recovered completely and returned to service, 85 per cent. were looked after by friends, only 14 per cent. were certified. Of 100 consecutive cases, it was found that in 50 the thyroid was enlarged; in these and 20 others there were symptoms of hyperthyroidism, and in 30, mostly men above 40, vasomotor disturbances of the class due to disturbed sympathetic innervation.

There were no cases of Graves's disease, but persons predisposed to over-activity of the thyroid were liable to break down under very slight stress. Mental patients recovered in far larger proportion than is usual; this being due to their coming very quickly under treatment. Shell shock was very rare, and only occurred among men in action ashore. The shell-shock syndrome, as Surgeon-Lieutenant Beaton observes, does no good service to a man in action, if on board a ship. Ashore, if he becomes paralysed he drops into cover, and the battle passes away from him and he is protected. At sea he remains in the battle, and paralysis will only prevent him from escaping if the battle goes against his side and his ship sinks. Shell shock is not a protective but a destructive syndrome afloat, so it did not occur. The mental health of the service, he says, rests in the hands of the executive officers. The "happy ship" has little crime and few mental breakdowns. "Fortunately, many naval officers become practical psychologists," and are able to get their men's confidence and make them efficient.

This article of Surgeon-Lieutenant Beaton's, if read and understood by the service in peace-time, should help to diminish the mental breakdowns of the next war. He has put his service as a temporary officer in the navy to good use, and his description of the severity of service in the Fleet will make every reader more grateful than before to the splendid service which stood the strain and saved us.

LITERARY INTELLIGENCE.—Mr. William Heinemann announces the approaching publication of "Venereal Diseases, their Clinical Aspect and Treatment," by J. E. R. McDonagh.

THE LANCET.

LONDON: SATURDAY, JUNE 12, 1920.

The People Desire to be Deceived.

THE parting by the public with money to specious advertisers who promise to cure disease or otherwise to promote the health of their clients, is a world-wide and world-long happening, to the eternal puzzledom of medicine. But in the United States of America the Government empowers itself to stop the trade of the vendor of fraudulent nostrums in certain directions. To the extent that it does so America is advancing civilisation. The action taken in the United States during the past few years is summarised in a booklet issued by the American Medical Association, entitled "Medical Mail Order Frauds," a title which more or less explains itself, and which details methods so familiar to our readers that only the briefest recapitulation of them is called for. The medical mail order business is initiated by advertisement, in response to which persons affected, or believing themselves to be affected, by disease write to the advertiser. In reply a form is sent to them, which they return filled up with details of their symptoms as observed by themselves. Particulars of proposed treatment and demands for payment follow in due course from the proprietors of the nostrum, the suggestion, implied or expressed in some of the correspondence or advertisements, being that the treatment represents the considered conclusion of a medical man. In a particular case described in "Medical Mail Order Frauds," instead of the letters being submitted to the discriminating physician—who, if he exists, may or may not be discriminating, but must have vague notions of ethics—they were passed on to girl clerks, who answered them from a book of models, or, as lawyers might call them, "common forms," furnished by their employers. Business was accelerated by division of labour, one girl underlining material passages and another picking out from the book of models such replies as to her might seem appropriate to the symptoms indicated by her colleague. Of course, if such a business enterprise as this is permitted to be carried on without interference, the manager of the institution who thus battens on the infirmities of his fellows is hardly to be blamed if, as success inflates him, he conducts his work through clerks instead of defrauding his customers personally. The trade is shown in "Medical Mail Order Frauds" to have been worth many hundreds of thousands of dollars yearly to its businesslike organisers.

This particular "business" and others of a similar nature are, we presume, now wiped out so far as traffic in the United States is concerned, for in each case given in the pamphlet we are informed that a "fraud order" was issued. In connexion with the "fraud order" a further order "denying the use of the mails" is made, apparently either as a necessary accompaniment of the first order, or as an addition rendering it more effective. The Post Office in America appears to be the prime mover in prosecutions where the use of the mails to assist in the fleecing of the public is an essential feature of the trade. The American Medical Association emphatically praises the efficient service of the United States postal authorities in protecting the public against "mail order medical fakers." It adds that this has often been done in the teeth of adverse political influences set in motion by the wealthy "fakers," and it highly commends the postal inspectors who have carried out the necessary investigations. This fact may be brought to the notice of our Postmaster-General with hope of imitation. For American virtues may damage this country seriously unless we in our turn become virtuous. A "fraud order" and "denial of the mails" may stamp out a dishonest and mischievous trade in the United States, but it will not prevent that trade from enjoying prosperity overseas. We have our own "mail order medical fakers," and there is nothing, so far as we are aware, to prevent enterprising Americans from adding theirs to ours. With the majority of the names of commodities given in "Medical Mail Order Frauds" we are not familiar, or have only observed them in the advertisements of American publications of an inferior type sold in this country. One name, however, is that of a commodity which, banned in the United States as fraudulent, is advertised with impunity in the United Kingdom. The exploiters of "sargol" are described by the American Medical Association as having been found guilty of fraud in America and fined $30,000, after promising that their business should be discontinued. The fine was paid and on Feb. 27th, 1917, the Post Office Department issued a "fraud order" against the Sargol Company denying it the use of the mails.

But we find in our newspapers, some of them important and highly respected, advertisements of sargol during the month of May, 1920. The advertisements are similar in form and illustrative matter to those reproduced in "Medical Mail Order Frauds," and we give them gratuitous publicity. Under the headline, "How to Become Plump, Popular, and Attractive," they commence with the inquiry—

> "Would a little more flesh make you more stylish and attractive? Would 10 or 20 pounds more make you better satisfied with your personal appearance? If so you should try Sargol. It will make you nice and plump, give you greater strength, better health, and double your powers of endurance."

The evidence given in America was to the effect that sargol as sold there was made in accordance with a formula devised after a short consultation between one of the promoters of the business and a man connected with the "private formula" department of a famous firm of pharmaceutical chemists. Sargol was made up by that firm at a price from 53 to 78 cents per 1000 tablets, and sold at the rate of $25 a thousand, its composition being: Extract saw palmetto, 2 gr.; hypophosphite calcium, ½ gr.; hypophosphite sodium, ¼ gr.; hypophosphite potassium, ¼ gr.; lecithin, ⅛ gr.; extract nux vomica, 1/12 gr. And that is the composition on which the public is invited to grow nice and plump and strong. Some of the constituents of sargol under that formula may be in some degree tonic, but none of them consumed singly or in combination could affect the weight of the thin or emaciated, without reference to the cause of their condition, or in the manner claimed by the advertisers.

On the question of whether the public should be protected generally from robbery by greedy advertisers who promise more than they can perform, we say nothing. With the designs even of fraudulent traders, so long as they only affect the purses of the credulous, we are not concerned. When, however, such persons pretend to cure disease, or to promote health by means which cannot achieve either purpose, we consider it our duty, in the interest of the health as well as of the pockets of the public, to call attention to the nature of the business. More particularly are we interested when the claims of the advertiser are supported by testimonials and recommendations alleged to have been given by members of the medical profession.

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The Clinical Diagnosis of Exudations in the Throat.

QUITE apart from its convenience, the establishment of any reliable diagnostic indications obtainable from a simple examination of the fauces, as opposed to a bacteriological examination in the diagnosis of different forms of throat illness, is welcome, inasmuch as it implies a more exact knowledge of disease. The amount of time, too, which may be saved by making a diagnosis from ocular inspection on the spot rather than by awaiting for the result of a bacteriological examination may, as is rightly emphasised by Dr. H. DRINKWATER in an article on the clinical diagnosis of diphtheria and other exudations in the throat, which appeared in THE LANCET of May 29th, make just the difference between life and death if treatment be delayed until the report from the laboratory is received. Unfortunately, this is a practice which is too often followed, occasionally, in cases of diphtheria, with disastrous results, as is also the not uncommon mistake of ignoring positive clinical evidence, even when fairly patent, in view of a negative bacteriological finding.

Admitting the paramount importance of immediate clinical evidence, the whole question hinges on its reliability. As a correspondent suggests in another column, it seems too good to be true. Dr. DRINKWATER, in the article referred to, lays down certain data concerned with the naked-eye appearance of the fauces by which he claims that he can invariably differentiate between diphtheria and Vincent's angina, on the one hand, and other forms of sore-throat showing exudation, of which he instances follicular tonsillitis and influenza. Dr. DRINKWATER bases his claim upon an experience of over three years in a fever hospital serving the needs of a population of 80,000, in the course of which he states that in every instance his naked-eye diagnosis was confirmed by subsequent bacteriological examination. If this be so, Dr. DRINKWATER is to be sincerely congratulated, for we doubt if it can have fallen to the lot of many other observers, even if possessed of an equally wide experience of exudation throats, to have been so uniformly successful. The article is illustrated by a number of drawings which, allowing for an inevitable loss of definition incidental to their reproduction in print, serve to bring out the special distinctions on which Dr. DRINKWATER relies. The main proposition which emerges on careful perusal of the article is that on no single one of the six areas into which, for the purposes of clinical description, the author divides up the fauces, will more than one patch of exudate be seen in the case of either diphtheria or Vincent's angina, and that if there be more than one the diagnosis of both of these two affections is negatived. At this somewhat sweeping statement we confess to a feeling of some surprise. Dr. KNYVETT GORDON, in a letter we published in our issue of June 5th, states that it is by no means uncommon in adults for diphtheritic exudation to commence at several points on the same tonsil, and thus closely simulate follicular tonsillitis in appearance. That diphtheria and Vincent's angina, moreover, should stand alone in presenting a single patch on the tonsillar area is hardly, we think, in accord with the experience of most observers. In follicular tonsillitis, it is true, the spots or patches are usually multiple, but cases are surely not uncommon in which a single patch is present on the tonsil and which as the result of bacteriological examination are classed as "coccal." These are the very cases which, though neither diphtheria nor Vincent's angina, are apt to so closely simulate the former as to give rise to difficulty in diagnosis. This form of throat, too, is sometimes met with in scarlet fever, the patch being usually confined to the tonsillar area. Dr. DRINKWATER admits that this peculiarity of distribution of the patches affords no guide to the differentiation of diphtheria from Vincent's angina, though he describes certain distinctive appearances in each of these affections which should prove helpful in diagnosis.

The special characteristics of the exudation which Dr. DRINKWATER regards as distinctive of diphtheria are the following: (1) It is raised above the level of the mucous membrane; (2) the edges of the deposit are sharply defined all round; (3) in colour it may be white and glistening, bluish, yellow, or spotted with black or red. Most observers, we think, will agree with the writer as regards the first and the last of these indications, but that the exudate is always sharply defined in its entire circumference we cannot agree, although this feature is very noticeable in the specimens of diphtheritic exudation (Figs. 2 to 7) depicted in the illustrations. It is by no means an uncommon experience in some of the worst cases of faucial diphtheria, especially when the palate is involved, to see the exudation merging into the pallid and œdematous mucous membrane without any line of demarcation whatever between them. We note with some surprise that Dr. DRINKWATER makes no distinction between an exudation associated with the Hoffmann bacillus and one in which the Klebs-Löffler organism is present. He classifies them both as diphtheria. The characteristic appearances of Vincent's angina are well described and should prove very helpful in diagnosis. The illustrations, too, bring out very clearly the points on which Dr. DRINKWATER relies, especially the longitudinal sulcus (Fig. 8) and the fading off of the lower margin of the patch (Figs. 9 and 10), an appearance which, by the way, is sometimes seen in secondary syphilis. It might be added that the characteristic lesion of Vincent's angina is, on the whole, more apt to suggest an ulceration rather than a true exudation, another point in which it resembles syphilis. Dr. DRINKWATER'S article is deserving of careful study by anyone engaged in general practice, for even if one is not prepared to go the whole way with him and accept his propositions as infallible there is much in his teaching to inspire confidence in the clinical diagnosis of throat affections in circumstances where time is a matter of importance.

A Great Appreciation.

The dinner in appreciation of the services of the Royal Army Medical Corps and of the civilian officers attached to it during the war, a short account of which appears elsewhere, was an extraordinary recognition, spontaneous, unexpected, and generous, of the medical work throughout five terrible years —work, it should be added, which still remains in active doing in every direction. It was, as Sir Alfred Keogh said in his eloquent reply to the words of national thanks uttered by Lord Midleton, Mr. Churchill, and Earl Haig, an outward sign that 60 years of hope and endeavour had at last reached fruition. For to-day, while the medical officers of the army have become, in every sense of the words, an integral part of all military plans and designs, they are also enabled to preserve close association with their civilian brethren.

The bitter lessons learnt in the Crimean War, 60 years ago, were mostly neglected, were greatly relearnt in the South African War, and through the events of the world war have become the accepted wisdom of advanced communities. When Sidney Herbert determined to ensure, during a later tenure of office, that the misfortunes which overtook our army in Russia, with its miserable absence of medical equipment, its total neglect of elementary hygiene, and its lack of nursing material, he and Florence Nightingale began what it has been left to the statesmanship and science of the twentieth century to transform into ordered being. It was at Sidney Herbert's suggestion that four supplementary commissions were instituted in connexion with the Royal Commission on the Sanitary Condition of the Army, which was made necessary by the Crimean disasters. These commissions dealt with the construction and sanitation of hospitals and barracks, with the condition of the Army Medical Department—for which Herbert drafted a code of regulations, with the right keeping of army statistics, and with the provision of facilities for the proper education of the department. The ideals which Herbert placed before himself are those which the Directors-General of the Army Medical Department, notably Sir Alfred Keogh and his successor Sir John Goodwin, have kept steadily before them, but it is not anything for this country to boast of that during the period of exactly 60 years, which elapsed between the opening of the Great War and the close of the Crimean War nothing was done worth doing, until the South African War again found us unready. We are not unmindful, however, in saying this, that medicine, preventive and curative, had vastly more to give, with all the Listerian doctrines behind it, than it could have given until the closing phases of the Victorian epoch. But the dinner to the Royal Army Medical Corps, at which the hosts included the principal statesmen and men of affairs who have presided over the War Office in recent times not only was a tribute of praise excellently directed, but a public pledge that for all future time no one will doubt that well-administered preventive and clinical medicine will win wars.

Honour to General Gorgas.—In the course of a visit to the Queen Alexandra Hospital at Millbank on June 8th His Majesty the King bestowed the K.C.M.G. on Surgeon-General W. C. Gorgas, of the American Medical Service.

Annotations.

"Ne quid nimis."

THE BIRTHDAY HONOURS.

The Birthday Honours published last Saturday contained many names, and the notes which have appeared in the daily press upon the services rendered by those selected for notice show very well how various were the activities concerned throughout the war and the high level of accomplishment reached by many sections of the community. The members of the medical profession selected for honour include the following: Dr. James Dundas Grant, the well-known aurist, Mr. Arnold Lawson, who has done admirable ophthalmological work at St. Dunstan's, and Colonel William Taylor, formerly President of the Royal College of Surgeons in Ireland, receive the K.B.E. The honour of civil knighthood has been conferred upon Dr. Sidney Robert Alexander, many times Mayor of Faversham, Professor Frederick William Andrewes, F.R.S., pathologist to St. Bartholomew's Hospital, whose work in medical research is known to us all, Dr. Sydney Beauchamp, Dr. Charles O'Brien Harding, and Colonel Hormasjee Eduljee Banatvala, I.M.S. (ret.), who was lately Inspector-General of Civil Hospitals at Assam. Dr. Beauchamp was medical adviser to the British Delegation at the Peace Conference, and the post was no sinecure during the epidemic of influenza. He was responsible for the organisation of Wrest Park as a military hospital in September, 1914, and was its chief medical officer till its destruction by fire in 1916. Dr. Harding has been five times Mayor of Eastbourne, and recently received a presentation from the inhabitants in recognition of the impartiality, dignity, and efficiency with which he performed his onerous duties. Surgeon-Rear-Admiral George Albert Dreaper has been awarded the C.B. The Kaisar-i-Hind Medal has been bestowed upon Shamrao Ramrao Moolgavkar, principal medical officer to the Bikaner State, and Miss Millicent Webb, the lady-superintendent of the Dufferin Victoria Hospital in Calcutta. The Imperial Service Order of India has been bestowed upon Mahendra Nath Bhattacharji, personal assistant to the surgeon to the Governor of Bengal, and Egambaram Rangaswami Doss, the late chief attendant to the Medical College in Madras, has received the Imperial Service medal. The British war service has been recognised by the President of the French Republic in the persons of Sir Arthur Staley, chairman of the British Red Cross Society, who becomes a Commander of the Legion of Honour, Sir George Beatson and Dr. Alexander Granville, the British Red Cross Commissioner at Alexandria, who have been made Officers, and Dr. Septimus Sunderland, who has been made a Chevalier of the same Order. The last honour is also conferred upon Miss Edith Pye, the directress of the Friends' Lying-in Hospital at Châlons. Dr. Alexander Granville has also had conferred upon him the Order of the Crown of Italy. The King of Greece and the President of the Chinese Republic have conferred upon Sir William Robert Smith, late Sheriff of the City of London, a Commandership of the Order of George I. and a Second Class with Grand Cordon of the Order of the Excellent Crop respectively.

Medical men will very well recognise the appropriateness also of the following distinctions:

Mr. Wemyss Grant Wilson, director of the Borstal Association and of the Central Association for the Aid of Discharged Convicts, has received the honour of knighthood. Mr. C. M. Hutchinson, the Imperial Agricultural Bacteriologist, and Mr. R. S. Pearson, Forest Economist at the Research Institute of Dehra Dun, have received the C.I.E.

THE STANDARDISATION OF TREATMENT BY RADIUM.

To form an accurate conception of the value of radium in the treatment of malignant disease it is necessary to have some standards by which ideas can be fixed and comparisons made. In the course of the discussion at the Section of Obstetrics and Gynæcology of the Royal Society of Medicine, reported on p. 1270 of our present issue, various speakers gave hopeful or guarded opinions as the result of their experiences, but it was difficult to extract much helpful information owing to the lack of uniformity in the methods used and to the lack of precision in differentiating these methods. Thus, some used one tube of radium only and some many tubes. Quantities varied between 25 and 250 mg. of radium. The applications were given daily by some, weekly by others, and at periods of six weeks by a third set of investigators. The duration of exposure varied from 20 minutes to two days. Metals of known and unknown nature and thickness were employed as screens, and in some cases results investigated only a few days after the treatment, the question of a radium reaction being left out of consideration. While some buried tubes in the growth, others were content to place them against its surface. If progress is to be made along this hopeful line of treatment the operator must form a clear conception of what he is doing, and why he is doing it; of the changes likely to occur and the approximate time of their development. For purposes of collective investigation some standardisation of methods is essential. This does not imply absolute fixity or any unreasonable attempt to limit such variations as seem desirable; but it does imply persistence in a defined method over at least one series of cases, with subsequent alteration only for scientific reasons or as a result of definite observations deduced from that series. A clear statement of the exact technique used in treatment would enable one worker in radium to obtain valuable help from others. In England a helpful step in this direction would be the adoption of the practice of describing all quantities of radium used in terms of radium element or metal. It is the element itself, with its decomposition products, that is the source of the radiations, and physicists are strongly of opinion that radium element is the proper scientific standard. The use of radium bromide ($RaBr_2 2H_2O$) as a standard is merely a survival of the older commercial methods of selling radium salts, and leads to endless confusion at meetings and in medical literature. There is no reason why its use should not die out, as did the older method of describing the strength of radium plates by their activity in relationship to uranium. The change would be very easy, as the quantities of salt to metal used are approximately as 2 to 1. Another point is that the unit of radium emanation is the "Curie"—that is to say, a Curie is the quantity of emanation in equilibrium with a gramme of radium element. Thus, so far as medicine is concerned, to talk of a millicurie of emanation is equivalent to talking of a milligramme of radium element. The bromide standard obviously introduces an unnecessary complication, and, moreover, the exclusive use of the radium element unit would bring us into conformity with the big American radium centres.

ANÆSTHETISTS IN AMERICA.

THE American Association of Anæsthetists at a recent convention passed some resolutions which are very interesting to all concerned with anæsthetics. It will be remembered that not long ago we printed several letters from correspondents who discussed the advisability of encouraging the administration of anæsthetics by nurses. This practice, which necessity compelled during the war, and which as an emergency measure fulfilled its purpose admirably in most instances, has no wide measure of support in this country. In America it is more common, and the Association of Anæsthetists points out its disadvantages and those that accrue still more forcibly if administration is entrusted to unqualified persons even less instructed than the nurse. The Association expresses itself as "unalterably opposed to the employment of lay anæsthetists, nurse anæsthetists, and all other types of anæsthetists who shall not have graduated from recognised medical or dental colleges and have been licensed to practise medicine or dentistry." We are in cordial agreement, as we fancy will be our readers, with the opinions of the American Association of Anæsthetists, and hope to see its opinion supported by legal enactment in the chief States.

STRICTURE OF THE ŒSOPHAGUS.

CICATRICIAL stricture of the œsophagus, resulting from the swallowing of caustic fluids, is fortunately not very common, for, when the stricture is multiple or extreme, treatment is by no means easy. Gradual dilatation by the passage of increasingly large bougies is a difficult and tedious business, and very trying to a nervous patient. Moreover, it is not possible to control the movements of any but the finest bougie by means of œsophagoscopy. Surgical intervention by the thoracic route has been essayed, but gives a high rate of mortality. Dr. Charles Goris has recently published[1] a series of nine cases treated by surgical intervention through the stomach. The operation is carried out in two stages. In the first a gastro-fixation is performed, a large area of the cardiac end of the stomach being exposed. For the second stage of gastrostomy no anæsthesia is required, except in the case of children and nervous adults, the incision of the stomach wall being quite painless. The usual local anæsthesia is, of course, necessary for the contemporary passage of the œsophagoscope. A fine bougie is then passed into the stomach and a cotton thread attached and drawn through the stricture—cotton being preferred to silk since it is more resistant to digestion by the gastric secretion. An endless thread is thus established to which "olives" of increasing size may be fastened and an easy method of dilatation established. Once started, the patient soon learns to pass bougies for himself, and cure is comparatively rapid. Eight of Dr. Goris's cases were completely successful. In the ninth case it was found impossible to pass a bougie without internal œsophagotomy. A temporary recovery was made and olives passed, but the patient was unable to continue to swallow on account of the pain caused. It was shown by radiography that a false passage had been made by the œsophagotomy.

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[1] Sur neufs Interventions chirurgicales pour Sténoses cicatricielles de l'Œsophage, Le Scalpel, April 17th, 1920.

"GRADE 'A' CERTIFIED MILK."

MILK bearing this description is now being retailed in Manchester, put up in sealed one-pint bottles at a cost of *7d.* per pint—that is, *3d.* a pint dearer than the milk usually supplied for domestic purposes. The milk comes from the farms direct in the natural raw condition, accompanied by a Government guarantee of purity, and is neither pasteurised nor sterilised. The cattle must have passed the tuberculin test, and the buildings and utensils have to be certified by the Ministry of Food as conforming to their required exacting standards of cleanliness. To safeguard the public against the substitution of old milk the date on which the milk was bottled and sealed at the farm is stamped on the outer label. The milk appears to be bought chiefly by those who have charge of young children, and it would be an interesting experiment, in view of the approaching hot weather, to subsidise some of the poorer families attending welfare centres to enable them to use this milk, in the attempt to estimate the extent to which clean milk would prevent summer diarrhœa in infants.

NORMAL HORSE SERUM IN SEPSIS.

IN the *Journal of the Royal Army Medical Corps* for April Dr. E. Emrys-Roberts gives an account of the use of normal horse serum inoculation in the treatment of sepsis in war wounds. Two classes of case are recorded by Dr. Emrys-Roberts: one a group of three cases of acutely spreading gas gangrene at a casualty clearing station, the other a group of 14 cases of serious wounds, with swinging temperatures, undergoing treatment at the Queen Mary's Military Hospital, Whalley, Lancashire. Neither septicæmia nor secondary hæmorrhage was held to be a contra-indication, but cases with "pocketing" or sequestrum formation were excluded as far as possible. In all the cases recorded encouraging results were obtained, with reduction of temperature, disappearance of slough from wounds, and ultimate recovery. Normal horse serum has, of course, been used in the treatment of various acute and chronic infective diseases for a number of years. It has also been used for hæmoptysis, hæmophilia and secondary hæmorrhage. In most cases the doses employed have been small—e.g., 5–10 c.cm. Dr. Emrys-Roberts, however, used massive doses, beginning with 50 c.cm. and increasing up to 150 c.cm. The question of dosage, therefore, may be a matter of importance, and may partially explain why Dr. Emrys-Roberts's cases did so much better than cases previously reported in civilian practice. We are inclined to think, also, that some allowance must be made for the character of the cases—the young healthy adult in excellent physical condition is probably a better subject from the point of view of resistance to sepsis than the weakly town-dwelling civilian of ordinary hospital practice. But in any case the results are so exceptionally good that we hope extended trial of the method will be made; and that, furthermore, care will be taken in the choice of suitable cases. New methods of treatment are often unjustifiably condemned because they will not cure everything from migraine to carcinoma. With regard to the interpretation of the good results which he obtained, Dr. Emrys-Roberts is inclined to seek an explanation in the complement-content of the normal horse serum. Possibly this question might be cleared up by the use of decomplementised serum. If increased complement-content is in some way at the bottom of this treatment, then, as Dr. Emrys-Roberts points out, questions of leucocytic activity, cellular reaction, and antibody formation will have to be explored to this end. It is interesting to note that inoculations of peptone, bacterial protein (i.e., vaccines), and numerous other non-specific protein substances, appear to possess the power of reducing pyrexia in certain cases of chronic infective diseases, such as tuberculosis and chronic sepsis. Here is a difficult though fascinating field of research. Numerous cognate questions in serological and bacterial therapeutics seem to suggest that we are possibly on the verge of interesting new light on the old question of the relation of metabolism to temperature and antibody production.

THE SPAS OF SPAIN.

WE have received from a correspondent some notes about the spas of Spain, which are regretably little known in the British Isles. The mineral waters of Spain are of great number and variety, rich in medicinal properties, and are much favoured by Spaniards themselves. Some of the more accessible of these health resorts are likely in the near future to be visited by those tourists who used to frequent German and Austrian spas.

To many accustomed to the extraneous luxuries and amusements of spa life in other countries, Spanish health resorts may appear somewhat dull. The hotels often supply but little beyond the essential services of board and lodging. A band is by no means a matter of course, even in a fairly large establishment. The spas are private properties, licensed by the State only after a thorough investigation and analysis of the medicinal properties of the water in the springs. Many of them are run by a limited liability company and are advertised extensively. The advertisements do not err on the side of moderation; some spas appear to be "cure-alls," and among the "indications" given for the waters, no organ of the body or vague symptom of disease is left out. There are no municipal spas. Unlike the watering-places in other countries, no one can take the waters without consulting the official doctor of the establishment, who is a member of the Association of Mineral Water Doctors and holds his appointment as a specialist.

There are over 200 spas in Spain, scattered broadcast throughout the peninsula. Some of these resorts are of the most primitive character. In general, however, the arrangements are sufficiently convenient for ordinary people who desire to take their cure seriously and are content to lead a simple life and enjoy a delightful climate among a friendly and polite people. The difficulties for travellers in Spain are mainly those of the railways, but in certain parts these have greatly improved in recent times. In Spain "a cure" is a very popular holiday. A few weeks at an inland watering-place compares with an Englishman's trip to the sea. Some of the best known resorts are situated amid beautiful surroundings, and are within easy reach of interesting places. As a rule the season lasts from the beginning or middle of June to the end of September. For convenient travelling it would be necessary to confine the list of places to those within easy range of San Sebastian and Santander, and a useful variety of waters can be obtained in these districts. The following are among the best known, and in general the arrangements are on more or less up-to-date lines.

Alzola.—Saline and gaseous, with an appreciable amount of lithia; suitable in dyspepsia, gout, and rheumatism, situated in beautiful surroundings. Several hotels beside the establishment with 80 bedrooms. In the Balneario every kind of apparatus for hydropathic treatment.

Caldas de Besaya.—Thermal saline, not far from Santander. Approached from San Sebastian. Useful in rheumatism.

Cestona.—Thermal saline, sulphated alkaline with a trace of lithia, used in diseases of liver and digestion, in gout and rheumatism. Fine bath installation, Zander, &c. Station Arrona on San Sebastian-Bilbao line.

Fuencaliente.—Mild ferruginous alkaline waters, useful in debility. On San Sebastian-Madrid line, near Miranda.

Lierganes.—"Gypsum waters" in chronic catarrh and in skin diseases. Near Santander from San Sebastian.

Molinar de Carranzas.—Saline and gaseous, radio-active, indicated in rheumatic affections. Not far from Bilbao, on the line to Santander.

Ontaneda.—Thermal sulphur waters, similar to those of Harrogate; near Santander, on Bilbao-Santander line.

Sobron Y Sorportilla.—Alkaline waters, indicated in rheumatism and dyspeptic troubles. Situated on the Ebro, near Miranda.

Solares.—Alkaline water, situated in beautiful scenery and within easy distance of interesting places. Near Santander.

Zaldiva.—Strong sulphur waters. A quiet little spa, situated in a small park near Bilbao. Good bath installation; on San Sebastian-Bilbao line.

The above resorts are all easily approached from San Sebastian and form samples of Spanish spas; pamphlets, with fuller details of their attractions, can be had from their respective directors. It is to be hoped that continental travel will soon become less complicated by passport formalities, as the interchange of visits between the people of neighbouring countries is more likely to cement national friendship than formal visits by their rulers. The insular attitude of the British was passing peacefully away, under the influence of cheap tours abroad, when in 1914 the whole of continental society was turned upside down and inside out by the war. That attitude should not return, but it will remain alive until habitual continental travel can be re-established among the middle classes. The present generation will hardly care to fraternise with the German-speaking people, but Spain is such an old enemy as to have been for many years a valued friend.

TUBERCULOSIS IN A REMOTE COMMUNITY.

IN the current number of *Tubercle* Dr. E. Björn-Hansen records a series of observations on the incidence of tuberculosis in a Norwegian mountain village in which no death from tubercle has been known. There is no road to the village, and the mother-parish is 14 miles distant. The folk are farmers, and number 53; the children go to the village school and are thus isolated from the outer world till they are prepared for confirmation in the mother-parish, apparently at the age of 15. It is thus not surprising to find that all the 17 children under that age were tubercle-free, as indicated by a negative von Pirquet reaction. Among persons from 16 to 25, 40 per cent. showed a positive reaction and, as might be expected, advancing ages revealed an increasing percentage of positive results, but there is again a fall at ages above 45, doubtless due to the fact that even in the mother-parish there was hardly a case of tuberculosis before the late "seventies" and that the whole district was then still more isolated than now. Of actual clinical tuberculosis 3 cases are noted. First, a consumptive labourer lived on one of the farms 18 or 20 years ago for 3 years, and in this and a neighbouring farm which he frequently visited all the adults, but none of the children, gave positive reactions. The second case is that of a young man who suffers from benign tubercle of the lungs contracted while at work elsewhere and only recently returned, while the third case is one of non-suppurating disease of the glands. Dr. Björn-Hansen considers that all cases giving a positive reaction are derived from contact with the first of these three cases, or are newcomers, or are those who work much elsewhere, and he attributes the fact that tuberculosis has not been more virulent in this virgin soil to "the small quantity of infectious matter, the rare opportunity of re-infection, or the healthy life on these mountain farms." It should be added that the veterinary surgeon knows of no tuberculosis among the cattle, but no tuberculin tests have been applied.

THE SYSTEMATIC CONSERVATION OF MUTILATED FINGERS.

IN the *Gazette des Hôpitaux* of April 27th M. Paul Bonnet has called attention to the importance of systematic conservation of mutilated fingers the function of which is definitely lost, with a view to their use in plastic operations. During the war the premature or unexpected explosion of hand grenades rendered us familiar with such lesions. The treatment found necessary for conserving as much function as possible furnishes details of technique which may be useful in industrial accidents. M. Bonnet insists on the need of being as parsimonious as possible with regard to removal of skin and of delaying amputations which may appear necessary at first because the use of fingers seems to be irremediably lost. The skin of fingers which it is decided to sacrifice may afterwards prove useful in plastic operations necessary for loss of substance of the palm. M. Bonnet reports the following example.

A shoemaker, aged 43 years, was wounded by fragments of a grenade on August 27th, 1916, and brought to a field hospital four hours later. In addition to other wounds, there was a large irregular wound of the left palm extending slightly on the dorsum of the hand. The superficial palmar vessels were torn, and the tendons of the middle and ring fingers were divided. The ring finger was torn off from the middle of the first phalanx. The third phalanx of the middle finger with its integument was blown away, and the base of the finger was involved in the palmar wound. The first phalanx was fractured, and the flexor tendons were divided, but the finger was still attached to the hand by the skin of its dorsum. The superficial palmar arch and two collateral vessels were wounded and were ligatured. Dead tissue was removed from the margins of the wound. The function of the middle finger was irremediably lost because the first phalanx was the seat of comminuted fracture and the flexor tendons were divided, but sufficient integument remained for the nutrition of the finger. The wound was cleansed with Dakin's fluid, and then carbolic solution was applied and a dressing impregnated with iodised alcohol. On Sept. 14th the aspect of the wound seemed to be favourable for a plastic operation. The wound was painted with tincture of iodine and freshened over its whole surface by curetting exuberant granulations. The margins, which showed a few points of sloughing, were freshened with a bistoury and in places undermined so as to allow the skin to be drawn over the wound, which was too large to be covered by the digital flap alone. The middle finger was divided longitudinally on its palmar surface, and then boned and freed from its tendons, the skin only being preserved. This constituted a large flap, connected to the dorsum of the hand by a pedicle 3 cm. broad. It was decided to preserve the stumps of the first phalanges of the middle and ring fingers in the hope that they might help in prehension. The bone was freshened by division with forceps, and a stump 1 cm. long thus preserved. The flap derived from the middle finger had then to cover the stumps of the first phalanges of the middle and ring fingers, over which it was reflected, an extensive surface of the palm, and a small surface of the dorsum of the hand. It could not do this completely; there remained at the upper part of the palmar wound a small quadrilateral surface uncovered. Healing took place in a short time, but the patient was not able to resume his occupation of shoemaker, and the finger-stumps did not appear to assist in prehension. The results of the autoplasty, however, were excellent.

This method of cheiroplasty by "boning a finger" was practised before the war, and described at the Société de Médecine de Nancy in 1911 by Gross.

DIABETES AND INFLUENZA.

According to Dr. Ketil Motzfeldt,[1] of Christiania, though numerous cases of diabetes were published in connexion with the influenza epidemic of 1890, only a few instances of this association have been recorded during the last epidemic. He reports four cases in which the first symptoms of diabetes set in during an ordinary attack of influenza or shortly afterwards. In spite of the youth of the patients, who were aged 14, 15, 20, and 35 years respectively, the diabetes was of a very mild character, and in three cases the tolerance for carbohydrates increased considerably during the treatment. The first case was of special interest, inasmuch as the possibility of a pancreatic infection was suggested. The patient, a man aged 35, began to suffer from a peculiar deep-seated pain in the epigastrium during the first few days of his influenzal attack, and after the temperature had been normal for a week he developed thirst and polyuria. On admission to hospital a month later the urine gave a positive ferric chloride reaction; the sugar disappeared after five days' treatment. The tolerance was tested 18 months later, when 500 g. of bread could be taken without glycosuria. After 50 g. of glucose glycosuria appeared and lasted for three hours.

LIGHT FILTERS FOR MICROSCOPIC WORK.

While for the ordinary purposes of laboratory technique the limits of microscopic vision have probably been reached with modern instruments, the results obtainable may be improved in many respects by a more careful manipulation of the means at our disposal. Kodak, Limited, have placed on the market a set of light filters for use with the microscope which should be of considerable value. These filters, known as the Wratten Visual "M" Filters, are distinct from the standard square sets used for photomicrography, being circular in shape with a diameter of 35 mm., and designed to fit the ring usually supplied with the ordinary substage microscopic fittings. They are sold in sets of nine and include a variety of tints, dark blue when the highest resolving power is required, green for contrast with pink- and red-stained specimens, red for contrast with blue- or green-stained specimens, and so forth. Two of the most useful of them are the neutral tint filter for modulating the intensity of illumination, and the "Tungsten to daylight" filter, which converts the light from an artificial illuminant to equivalent daylight. The latter should be particularly called for where daylight is not available, or where a constant form of illumination is required.

THE IMPERIAL WAR MUSEUM.

It is doubtful whether a collection of exhibits like those now on view in the Imperial War Museum, opened by H.M. the King at the Crystal Palace on Wednesday, has ever deserved such absorbing attention. The war trophies from sea, land, and air are one and all of a most interesting description, and they are there in profusion. Apart from projectiles, weapons, guns, and other war materials, there are two sections of particular appeal to the medical profession—the naval and army medical exhibits. These sections not only illustrate the splendid service rendered by our great medical administrations, but are instructive also in regard to the methods of the enemy in this direction, and the ultimate straits to which Germany was reduced as the end approached. Lace curtains, for example, were used for bandaging, and spring wire cloth was made to replace rubber, and so forth. Again, examples are presented of all the appliances employed against poison gas attacks, and in the steps taken to supply the men with oxygen and various medicaments in the submarine. Much of the medical history of the war is here in graphic form, and the pictures are a very striking and attractive feature of the exhibition. We understand that the War Museum is to be a permanent one, so that the opportunity of studying the models and exhibits is to be open for all time. But we recommend an early visit, while the memory of events is fresh.

SARCOMA OF THE BLADDER.

At a recent meeting of the Chicago Urological Society Dr. Charles Morgan McKenna[1] reported a case of sarcoma of the bladder in an unmarried woman, age 42, who had suffered from periodical hæmaturia from 4½ to 6 months. On cystoscopic examination a papillomatous growth was seen which involved the orifice of the left ureter. Fulguration was performed five times at intervals of five days, and subsequently a suprapubic operation was carried out and the tumour removed. The ureter was divided about 1¼ in. above its orifice and a transplantation made. Six months after the operation, when the case was reported, no recurrence had taken place. Histological examination of the tumour, which was about the size of a walnut and of very hard consistence, showed that it was a large spindle-celled sarcoma. According to Legueu sarcoma of the bladder is a very rare occurrence, only 55 cases having been recorded. It is more frequent in women than in men, and occurs mostly in early childhood and middle age. The tumour grows in the mucous membrane, is sessile, and rarely becomes pedunculated. It is usually situated at the base of the bladder in the neighbourhood of the ureter. Metastases are found in the bones, prostate, and iliac vessels, and secondary nuclei occur in the lungs, liver, and spleen. In the subsequent discussion Dr. Louis E. Schmidt, who reported three cases in patients aged from 19 to 25, confirmed the rarity of sarcoma and pointed out that the prognosis was much better than that of carcinoma of the bladder.

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[1] Norsk Magazin for Laegevidenskaben, April, 1920.

[1] The Urologic and Cutaneous Review, May, 1920.

THE GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

The Case of Pandit Devi Dayal Sasun.

AT a meeting held on Wednesday, June 2nd, the Council proceeded to the consideration of this case. The charge was as follows :—

> That being a registered medical practitioner you were, at the General Session holden at the Central Criminal Court on April 13th, 1920, convicted of the following felony—namely, of unlawfully killing Elsie Maud Wright—and sentenced to ten years' penal servitude.

Sir ARCHIBALD BODKIN read the evidence of indictment, and Mr. HARPER, solicitor to the Council, detailed the facts, which showed that 116 documents were found from the same number of women on whom it had now been proved he had performed an illegal operation. There was no defence, and no questions were asked by members of the Council.

After deliberating *in camera* the PRESIDENT announced as follows: "Pandit Devi Dayal Sasun having been proved to have been convicted of the felony alleged against him in the notice of inquiry, the Registrar has been directed to erase his name from the Medical Register."

The Case of Alexander John Wood, M.B., C.M. Edin.

This practitioner had been summoned to appear before the Council on the following charge :—

> That being a registered medical practitioner you abused your position by committing adultery and eloping with Emma Jane Harman, a married woman, you having been the medical attendant of the family, of which adultery you were found guilty by the decree of the Probate, Divorce, and Admiralty Division (Divorce) of the High Court of Justice, dated Oct. 18th, 1918, and made absolute on May 5th, 1919, in the case of Harman *v.* Harman and Wood, in which you were the co-respondent. And that, in relation thereto, you have been found guilty of infamous conduct in a professional respect.

Mr. HARPER stated that the accused practitioner, formerly in practice at Poole, Dorsetshire, was now residing in Saskatchewan; a communication from him, addressed from Moosejaw, stated that he had no defence to make to the charge, "as the decision of the Divorce Court left me none," at the same time asking that, should his name be erased from the Register, it would be done without unduly dragging his name in the dirt again. Mr. Harper detailed the facts in the case, which the judge described as a very bad one. The adultery took place in 1912, and the petitioner stated that he could not apply for the decree until 1918, as he could not save the necessary money before the latter date—facilities for obtaining divorce decrees by the poor were not operative until 1915. Harman's wages were 30*s.* a week. The acquaintance of the parties began after the birth of Mrs. Harman's child, at which event he was in attendance.

After considering the matter *in camera*, the PRESIDENT notified the Council's decision as follows: "I have to announce that the Council have adjudged Alexander John Wood to have been guilty of infamous conduct in a professional respect, and have directed the Registrar to erase from the Medical Register the name of Alexander John Wood."

The Case of Frederick Arthur Pring.

The summons in this case bore the following charge :—

> That being a registered medical practitioner you abused your position by committing adultery with Dorothea Morris, a married woman, with whom you stood in professional relationship, of which adultery you were found guilty by the decree of the Probate, Divorce, and Admiralty Division (Divorce) of the High Court of Justice, dated Nov. 5th, 1919, and made absolute on May 17th, 1920, in the case of Morris *v.* Morris and Pring, in which you were the co-respondent. And that, in relation thereto, you have been guilty of infamous conduct in a professional respect.

Mr. Hempson (solicitor) appeared for the accused practitioner, who did not attend.

Mr. HARPER, in submitting the facts of the case, first alluded to the question of the relationship of the accused to the lady in the case, as Dr. Pring had alleged that he did not stand in a professional relationship with her. This point did not come before the Divorce Court, whose concern was as to the proof or otherwise of the alleged adultery, and it held the charge to have been proved. But with the General Medical Council the crucial point in such cases had always been as to whether the accused practitioner stood in the position of medical attendant to the lady or the members of her family. If this relationship were established here Dr. Pring must be held to be guilty of the charge of infamous conduct. A judge had declared "every bedroom in the village is open to the doctor." Mr. Morris brought divorce proceedings against his wife, with Dr. Pring and another man as co-respondents. As the case against the other man was not tried it would be unfair to use his name in the case. The case against Dr. Pring was tried and was answered formally by Mrs. Morris and by Dr. Pring, both denying the charge; and Mrs. Morris countercharged Mr. Morris with committing an unnatural offence upon her, which, if proved, would have disentitled Mr. Morris to a decree. It was held that no unnatural offence was committed. The onus now lay upon the accused practitioner to support his statement that he was not acting as medical attendant to Mrs. Morris, but he was not present to do so. On receiving the notice from the Council the accused practitioner wrote that he did not commit adultery, despite the decree, and that he did not stand in a professional relationship with Mrs. Morris. Mr. Harper said the statement was amazing to him, as he did not think there could be a clearer case of professional relationship. He proceeded to read portions of the 400 pages of evidence given at the trial, and from documents, to support the following points. Dr. Pring was acquainted with Mrs. Morris before her marriage (as Miss Tate), and after her marriage he frequently lived at the same hotel as Mr. and Mrs. Morris, at different places, and during the husband's absences was a frequent visitor. She at this time never went out alone with her husband, but frequently did so with Dr. Pring; later she refused to allow her husband to share her room. Subsequently she removed to Dr. Pring's house, where he agreed to treat her, and forwarded reports to her husband. Mr. Harper read a number of accounts of charges for professional attendance.

At this stage Mr. HEMPSON said now the correspondence had been read he could not ask the Council to go into the question of professional relationship as if it were contested.

Mr. HARPER read the lady's confession of adultery with Dr. Pring, extending over a considerable period.

Mr. HEMPSON briefly addressed the Council in his client's behalf, in which he contended that the evidence of misconduct was purely inferential, although he fully agreed that affection between the two had been proved. Mere contiguity of rooms at a hôtel proved nothing. He called a witness as to character, Dr. J. C. Bentley, who was second in command of the Reserve Battalion to which Dr. Pring was attached.

Dr. J. C. BENTLEY stated that Dr. Pring and he were very friendly, and he never saw any behaviour between Dr. Pring and Mrs. Morris (whom Dr. Pring constantly referred to as his ward) other than what was proper for such a relationship during his many visits; and certainly all the senior officers knew the lady was married.

The Council then deliberated on the case *in camera*, and when strangers had been readmitted the PRESIDENT said: "I have to announce that the Council have judged Frederick Arthur Pring to have been guilty of infamous conduct in a professional respect, and have directed the Medical Registrar to erase from the Register the name of Frederick Arthur Pring."

Reports of Committees: Professional Examinations.

Dr. NORMAN WALKER moved the adoption of this report, which was concerned with the inspection of the examinations of the Apothecaries' Hall, Dublin, in 1919, by Dr. Finny, who was deputed to the work by the Council. It was a favourable report, Dr. Finny expressing the view that, if persevered in, the high tone of the examiners would raise the examination to the level of that of the Royal Colleges. He objected, however, to the piecemeal methods by which some candidates qualified. The report was adopted.

Dr. WALKER then proposed that the further report of the Examination Committee be adopted. This dealt with the examination tables for 1919 and on instruction in ophthalmology. There was a tendency for the licensing bodies to give less information than formerly as to operative surgery, ophthalmology, and mental diseases. The Council agreed to the recommendation :—

> "That the licensing bodies which have not hitherto supplied in the return information as to whether they do or do not examine in operative surgery, ophthalmology, and mental diseases be asked to do so in future."

Dr. WALKER said that reports were still lacking from some licensing bodies to show how far their regulations were in accordance with the recent recommendation of the Council concerning the teaching of ophthalmology. It was to the effect that every student should be required to attend a course of practical instruction in this subject of not less than ten weeks, and that no student should be allowed to sit in the Final Examination unless he presented a certificate stating that he had regularly attended such a course and that his work in the course had reached a satisfactory standard. The Committee appended the replies on this subject which had been received from 18 licensing and teaching bodies

The Council agreed to the usual recommendation that the Dublin Apothecaries' Hall be requested to furnish tables of exemptions from examinations, and the results of examinations as heretofore The Report of the Examination Committee as a whole was then adopted.

Dr. WALKER further stated that reports on the inspection of final examinations had been received from inspectors in reference to the examinations of the Conjoint Board in England on medicine, surgery, and midwifery, and of the Apothecaries' Society of London on medicine and surgery. It was agreed, however, that it would be wise to defer detailed comment upon them until the receipt of reports from other bodies, thus enabling a review to be made of the whole of the examinations.

Following this the Council deliberated on a number of matters *in camera*, and, on resuming the public hearing, considered the report of the Education Committee in regard to the duties devolving upon practitioners in their relation to the State and medical ethics, of which Committee Dr. Mackay is chairman. Replies on the matter had been received from 26 licensing and teaching bodies, and the general effect of these the Committee considers to be that the Council's recommendations were being given effect to. Some of the bodies promised more attention to the subject in the future.

Report of Public Health Committee.

At a meeting held on Thursday, June 3rd,

Sir JOHN MOORE, chairman of the Committee, submitted this report. He pointed out that among all the medical authorities granting the D.P.H., exemptions were granted in only three. 136 candidates passed the first examination, and 49 were rejected; the final was passed by 146, and the rejections numbered 48. The figures showed an increasing recognition by the public services of this higher qualification, especially in regard to preventive medicine. He said the Committee had considered two further communications from the Director General of the Medical Department of the Admiralty on the question of facilities for medical officers of the Navy. The first of these stated that the question of extended study-leave to medical officers in the Royal Navy who wished to take the D.P.H. was under consideration; and the second accompanied a copy of the syllabus for the two months' instruction at the Royal Naval Medical College, Greenwich.

The following recommendations at the end of the Committee's report were then discussed and eventually carried in due form, the PRESIDENT pointing out that there was no intention to cut down the total period of study in the least; it was merely putting the navy on the same footing as the army in this respect, and allowing the course to be taken in two parts at two places.

1 That the Council approve the instructions given to naval medical officers at the Royal Naval Medical School, Greenwich, before promotion, in the subjects of hygiene and bacteriology (systematic and practical laboratory courses) being accepted as equivalent to two months of the nine months curriculum required for the Diploma in Public Health.

2 That the course in hygiene at the Royal Medical School, Greenwich, required for promotion in the Royal Navy Medical Service, be considered equivalent to the instruction given by a teacher or teachers in the department of public health of a recognised medical school under Rule 3 (*f*), Note I 1.

3 That the Council approve the proposal of the Committee to defer its detailed remarks upon the reports of the inspector in public health until the inspection has been completed, so that a general review of the examinations as a whole may be made

Students' Registration Committee.

Sir NORMAN MOORE, the chairman of the Committee, submitted this report It gives a list of applications for exceptional registration as students, or for the antedating of the commencement of professional study. With the exception of the case of Mr Wills, who applied to have the course of study which he took out at Meharry Medical College, Tennessee—for the M.D.—recognised, the report was approved. Meharry College was not thought to be of a sufficiently high standard. The Council's approval embraces the recognition of the following institutions the Perse High School for Girls, Cambridge; Kingswood School, Bath; and Wellingborough School.

Report by Education Committee on Practical Midwifery.

Dr. MACKAY presented this report, and moved its reception.

Sir FRANCIS CHAMPNEYS, in seconding, passed the report under review, and added his views on the present-day position of the subject.

He thought it was being realised that midwifery was more directly associated with preventive medicine than with any other branch of medicine or surgery It had been a long time getting into its due place—it was not there even yet. Medicine and surgery had always taken the lion's share in regard to beds and the amount of instruction insisted upon in order to qualify to practise. The modern development of midwifery had been largely along the lines of chemistry and bacteriology, especially in regard to the still obscure chapter concerning the toxæmias of pregnancy. The obstetrician stood at the gate of life, whereas medicine and surgery were concerned with combating deviations from the normal. The case of the pregnant woman was a matter of very great importance, especially in dealing with and preventing the effect of venereal disease; it could be combated before delivery. Gynæcology could be regarded, in practice, as the clearing up of the débris of bad midwifery, and if midwifery were good much of the gynæcology would be unnecessary.

Sir Francis Champneys then discussed the heads of the inquiry addressed to the recognised teaching institutions on the carrying out of the General Medical Council's recommendations The requirements from candidates for a licence to practise were :—

1 Every student before commencing the study of practical midwifery should have held the offices of clinical medical clerk and surgical dresser, and should have attended a course of lectures on surgery and midwifery.

2 Every student should be required to present a certificate bearing evidence that he has conducted 20 cases of labour under official medical supervision, subject to the following conditions either (*a*) that he has previously given regular attendance for a period of three months upon the indoor practice of a lying in hospital or the lying in wards of a general hospital, and has received practical instruction therein; or (*b*) that he has previously given regular daily attendance for a period of one month upon the indoor practice of a lying-in hospital, or the lying in wards of a general hospital or Poor law infirmary having a resident medical officer, recognised by one of the licensing bodies, and that he has conducted cases of labour therein and has been certified by his instructor as competent to conduct outdoor cases under official medical supervision

3 The certificate that the student has conducted the above-mentioned 20 cases of labour should be given by a member of the staff of a lying in hospital, or the maternity charity of a general hospital recognised by one of the licensing bodies, or of a dispensary having an obstetric staff, or a Poor law infirmary having a resident medical officer similarly recognised

He said the recommendations of the Council had been received with general goodwill Several of the teaching bodies were unable to provide 20 cases for each student owing to insufficiency of material The first necessity was a large increase in lying in beds, without which adequate instruction at the bedside was impossible A reduction in the number of required cases per student would lower the standard A large number of the women trained for the examinations of the Central Midwives Board never intended to practise as midwives, hence the cases allotted to such women during their training were, in regard to the primary requirements of the State, wasted In 12 years the cases of which this could be said numbered 356,420 The lying in beds now available at the London medical schools would not suffice for the complete education of all their students Meantime he emphasised the necessity of intensive culture with respect to cases in the out-door maternity departments, students should be diligently taught upon such cases. The passing of the Midwives Act, 1902, was followed by a marked drop in puerperal mortality, and it had never since risen to its former level A certain number of students would receive in patient training—to be followed by out patient training—if a redistribution of beds were made in the general hospitals

The Education Committee believed that the present difficulties might be greatly alleviated First, in regard to the deficiency of lying-in beds, by the utilisation of beds in Poor law institutions under skilled instruction, and secondly, in reference to the deficiency of lying-in cases by the limitation of candidates for the certificates of the Central Midwives Board to pupils who have given undertakings to engage in practice as midwives for not less than three years after qualifying. Thirdly, the difficulty in regard to instruction could be largely met by the improvement in the quality of the teaching at the bedside in lying-in wards and in out-patient maternity departments. The Committee considers that the teaching of midwifery should be as thoroughly practical as that of surgery.

A general discussion on the subject ensued.

Dr. Dean (Manchester) assured the Council that the regulations were fully carried out at Manchester University. In fact, many students went there for this training because they could not get the accommodation and facilities in their own school.

Mr. G. Turner thought this one of the most important matters which could come before the Council at the present time, because cases of labour among the industrial classes were more and more passing into the hands of the qualified midwife—a beneficial change from the old septic "handy woman"—with the result that the function of the practitioner was becoming more than ever that of consultant in the midwife's cases in which difficulties presented themselves. This the practitioner in many cases did not favour.

Sir Gilbert Barling said he hoped they would not wait for the medical millennium before establishing the proper teaching of midwifery. The Poor-law authorities were anxious to promote what the Council desired. He hoped the teaching of midwifery would not be divorced from that on the subject of diseases of women. It was not desirable to train the medical student and the midwife in one institution; if any such attempt were made, one or the other would suffer injustice. Provision in this matter should be made at once, otherwise the large number of people now entering the profession could not have the necessary training.

Dr. Matthew Hay said medical men were not too ready to certify puerperal fever as a cause of death; but in Aberdeen for some years he had asked the registrar to inform him of the death of any woman occurring within four weeks of child-birth, whatever the cause was declared to be, and cases were found to have been due to puerperal fever which were not so certified. The Poor-law was about to die, and in Scotland women showed a strong disinclination to go to their institutions; they preferred to go to other places, even to be confined in unsatisfactory lodgings. He would like to be able to choose for maternity work women who had had a previous hospital training.

Sir George Newman agreed as to the need to take practical steps at once. Many proposals came before the Ministry of Health for the establishment of maternity homes, but the building of such institutions was likely to be postponed for some time to come because of the need of ordinary dwelling-houses. Half the general beds in this country were in the possession of the Poor-law authorities, about 90,000, and 30,000 of these might be available for hospital purposes. Amid great difference of opinion on nearly all subjects, everyone seemed to agree that there should be adequate provision for every child at the moment of birth. He did not hope for a proper utilisation of Poor-law accommodation until the supposed stigma attaching to the name had been conquered.

Sir John Moore said that in the Royal College of Physicians in Ireland this was a very burning question. He urged the discontinuance of the use of the term "Poor-law," and asked that Ireland be excluded from the recommendation. This was conceded.

The President said that a change in this regard had come over the local authorities, for, in contrast to the condition years ago, the Local Government Board and the Ministry of Health were now anxious that the Poor-law and maternity institutions should be fully utilised for the purposes of clinical teaching.

The report and the following recommendations were agreed to:—

That a communication be addressed to the Ministry of Health and the Board of Health of Scotland begging that steps may be taken for the utilisation of existing Poor-law institutions for clinical instruction, and that such instruction shall be placed in the hands of experts; further, calling attention to the desirability of limiting the acceptance of candidates for the C.M.B. certificates to those who give an undertaking to engage in the practice of midwifery for not less than three years after their qualification.

It also recommends that the attention of recognised teaching institutions be again called to the recommendations of the Council issued to them in 1906, in the hope that, when the present difficulties in training are alleviated, they may be able to carry out these recommendations in their entirety, and that the present conditions of training, which in many cases cannot be approved, may be rendered sufficient and such as the Council will be able to regard as satisfactory.

The Dental Education and Examination Committee.

The discussion of these reports occupied the rest of the day's sitting, and a report of the adjourned proceedings will follow next week.

THE ARMY MEDICAL SERVICE:

A GREAT APPRECIATION.

A dinner was given in appreciation of the services of the Royal Army Medical Department and the eminent civilians attached to it during the war on Tuesday last, at the Connaught Rooms, under the chairmanship of Lord Midleton. The hosts, many of whom it will be seen have held, or are holding, the highest positions at the War Office, were the following:—

Viscount Burnham, the *Earl of Derby, the Earl of Donoughmore, Viscount St. Davids, Lord Desborough, Sir John Ellerman, Earl Fitzwilliam, Sir Alan Hutchings, Sir Heath Harrison, Bt., Mr. Vesey G. M. Holt, Lord Harris, Lord Inchcape, Viscount Knutsford, the Marquis of Lansdowne, Sir Walter Lawrence, Bt., Lord Lee of Fareham, the *Earl of Midleton, Sir William B. Peat, Sir Ivor Philipps, Lord Queenborough, Sir Samuel Scott, Bt., the Marquis of Salisbury, Lord Somerleyton, the *Right Hon. J. E. B. Seely, the Earl of Scarbrough, the Hon. Sir Arthur Stanley, the *Right Hon. H. J. Tennant, *Lord Edmund Talbot, *Sir Edward Ward, Bt., and Lord Wavertree.

Those with an asterisk formed the dinner committee.

Sir Edward Ward took on the task of secretaryship.

After the King's health had been drunk, Lord Midleton proposed the only toast of the evening—namely, "The Royal Army Medical Department and the Eminent Civilians Attached to it," coupling the toast with the names of Lieutenant-General Sir Alfred Keogh, Director-General during the first four years of the war; Lieutenant-General Sir John Goodwin, his successor and the present Director-General; and Sir George Makins, President of the Royal College of Surgeons of England and late consulting surgeon to the armies in France.

Lord Midleton said that he believed this was the only case since the armistice that a particular branch of the army had been the object of a public ovation, and that it was remarkable when contrasted with the past attitude of the nation to all but the combatant branches of the army in other wars. In every war up to the present the medical service had been hurried into the field, although starved in numbers for peace service, insufficiently paid, without leisure or opportunity for scientific training, separated by a water-tight partition from the great civil profession which could be its only effective reserve, with scant opportunity for practising modern surgery, and confined to a medical curriculum the records of which were mainly a study in erotic literature. There were men in that room who could remember the days when in a large cantonment the only site assigned for a hospital, where capital operations were to be performed, was a vacant spot between a dust-heap and a slaughter-house, and when the last man to hear of any intended move of the army was the senior medical officer. To a department so restricted peace was a necessity. But if a review were to be now held of the departments of the army, and the award of excellence given solely for progress since 1900, he would make bold to say that the Commander-in-Chief in ordering the parade would not be unlikely to place the Army Medical Department on the right of the line. Nowadays the men who held commands in peace were so chosen as to hold the same commands in war, the equipment designed for peace was the same as the equipment for war, the gap between civilian and professional soldiers was so bridged over that the professional service could be developed into a national force. These principles were so applied by the Army Medical Department in the years before the war that it conciliated to itself the entire support of the great civilian profession, the most eminent members of which were there that night. The equipment was so overhauled that no change was necessary in it in any of the campaigns since 1914 A sanitary branch was organised in 1908, and while typhus was kept wholly at bay enteric fever received a knock down blow, as the figures for the South African War showed, compared with British figures for the recent war Inoculation had won as many battles for us as any one of the distinguished commanders present that night, while the man who discovered the 'Leishman bacillus" deserved as much of his country as the man who invented the Lewis gun The Royal Army Medical Corps, which consisted of 800 officers and 9000 other ranks in July, 1914, was developed to 16 000 officers and 132 000 other ranks in 1919, and exceeded in numbers the original Expeditionary Force Beyond *these thousands of busy practitioners attended hospitals for hours daily, refusing all remuneration*, 18,000 V A D s gave their services in these hospitals for years together, and 2000 masseuses provided by the public spirit of Lord Queenborough, served under the direction of Miss French Can you, asked Lord Midleton, have a higher tribute to any corps than that the nation thus mobilised itself in its support? With these reinforcements the Army Medical Corps, who having 2000 patients in hospital in 1914 attended 577 000 in 1919, and as early as July, 1916 received 48 000 patients in hospital in a single week We owe it to the successive heads of the Army Medical Department at home and abroad that these gigantic developments *did not lead to hopeless confusion* Our *army* was the *only one of all the combatants* which had *to conduct six different expeditions* at the same time It would be strange if with the desperate gamble of the Dardanelles the sudden stroke in Salonika, the mirage of Mesopotamia, all coincident with overwhelming claims in France, we had entirely avoided military miscalculations and consequent medical perplexities But through these difficulties the Army Medical Department, with its immense civilian retinue, marched breast high to ultimate success Lord Midleton concluded his speech as follows ' There sits upon my right to night as our chief guest the man who typifies the administrative genius, the executive efficiency and the scientific skill which enables us to thank *our guests not merely for great service to the* Empire but *for the position which they have won for* Great Britain in the scientific world It is due to him, to his able successor Sir John Goodwin and to the magnificent civilian assistance, typified by Sir George Makins, that the magnificent tribute can be paid to the Army Medical Department that the Department stands well with the army '"

Mr WINSTON CHURCHILL asked when every form of national effort producing the devices of destruction had received its tribute of popular applause why should those, who in equal danger and in equal hardship had been saving life not receive their meed? He pointed out that, when our island *nation*, with its *Empire gathered about it* plunged into war, so vast *an expansion of everything, offensive*, defensive and protective, had to follow, that those were found right in their forecasts who dared to think bigger than anyone else As a measure of the expansion in bulk of the work of the medical services he said, when the war began there were 7000 beds available, and when it ended there were 700 000 beds occupied In a passage of great eloquence he urged his audience to imagine what it must have meant to thousands of homes and hundreds of thousands of men in periods of the greatest human weakness and misfortune to know that the great mass of suffering misery, and *shattered figures which represented war could* cast itself upon the mercy of the Royal Army Medical Corps, never to find that mercy lacking, and he illustrated his meaning with a remarkable and personal picture of a large casualty station a few hours after a battle has begun Mr Churchill closed his speech by an acknowledgment of the immense services rendered by eminent civilians and gracefully confessed himself to have been in former days Lord Midleton's critic "youthful ignorant and hard" so that he rejoiced in the opportunity, which supporting the toast gave him *of saying that Lord Midleton s work in the* organisation of the army, following the Boer war had been in its most important respects signally vindicated

Field Marshal Earl HAIG described the work of the medical units attached to his own command during the fighting on the Aisne and dwelt on the extraordinary difficulty of the circumstances in which that work was carried on He went on to say that the Royal Army Medical Corps throughout the war had been absolutely splendid unselfish, and devoted while as the army grew the medical service had grown *in efficiency as well as size* He testified to the happy relations which existed between the Regular R A M C, the Temporary, and the Territorial officers and the rest of the army, acknowledging in conclusion, his personal and lasting debt as Commander in Chief to those in authority over the Army Medical Department during the war, making special allusion to Sir Arthur Sloggett Director General in France from 1914 to 1918

Sir ALFRED KEOGH said that on such an occasion it was completely impossible for him either in the time at his disposal or in any unlimited time to express all that should be said That night gave the Army Medical Department a triumph after more than 60 years of endeavour on their part to become efficient The beginning of that endeavour he traced to the influence of the great Sidney Herbert, who after the Crimean War took the lead in the movement for army medical reform, and was the mainspring of the first Royal Commission on the Sanitary Condition of the Army The movement thus started said Sir Alfred Keogh, did not progress with any strength, and nothing much was done that was practical until God sent the cause of medical reform two men—Midleton and Haldane Lord Midleton gave the officers of the Royal Army Medical Corps *the opportunity for post graduate study which made their scientific position sure* and he *founded* the school in London Lord Haldane brought the Regular medical officer of the army into close touch with the civilian branch of his profession, a thing which the R A M C had always craved for Alluding to the conduct of the R A M C in the war, now receiving a testimony which words failed him to describe, Sir Alfred Keogh pointed out that none of their improvements in sanitary science or education would have been of the least use had it not been for the intelligent sympathy of commanders in the field, commanders in the air, and battalion and company commanders who cared for the health of their men He pointed out that in the Mediterranean area Field Marshal Lord Methuen as *Governor of Malta*, had filled the *position of a great coordinator of all medical effort*

The toast was replied to also by Sir JOHN GOODWIN and Sir GEORGE MAKINS The Director General declared that the work of his department could not have been carried on with any success had it not been for the hearty cooperation of the War Office and the devoted industry of his staff, while he took the opportunity of reminding the audience how much our medical services at the beginning of the struggle owed to the voluntary aid of American surgeons Sir George Makins, replying for the civilians attached to the corps, briefly but sincerely acknowledged the unique compliment paid to medicine on the occasion, and alluded to the advantages which had accrued to medicine through the wide interchange of knowledge in unparalleled conditions

The company at dinner included—

Field Marshals Earl Haig and Lord Methuen

Generals Sir Ian Hamilton Lord Horne Sir Archibald Murray, Lord Rawlinson

Lieutenant Generals Sir William Babtie V C Sir T E Clarke, Sir John Goodwin Sir L Gubbins, Sir Alfred Keogh, Sir G M Macdonough Sir Arthur Sloggett

Major Generals Sir W G Bedford A P Blenkinsop Sir Anthony Bowlby Sir David Bruce G Cree Lord Dawson of Penn Sir W Donovan Sir G Evatt Sir T Gallwey Sir R S F Henderson, Sir J M Irwin Sir R Jones Sir W W Kenny S Macdonald Sir W Macpherson Sir George Makins S Guise Moores Sir Berkeley Moynihan Sir T J O Donnell Sir M W O Keefe Sir W W Pike Sir M Russell Rt Hon J Seely Sir G Stanistreet A A Sutton Sir C Wallace Sir H R Whitehead Sir T Yarr

Brigadier Generals W W O Beveridge and M H G Fell

Colonels Sir H G Barling Sir H E B Bruce Porter F F Burghard E F Buzzard A Carless W Coates J M Cowan Maurice Craig S L Cummins Sir H Davy R Davies Colley L S Dudgeon H L Eason W McAdam Eccles T R Elliott Sir T Crisp English S Flemming Sir R Firth J V Forrest Sir J Galloway G E Gask Sir H Gray H A Hinge W E Hume W Hunter H E R James Sir W Arbuthnot Lane Sir W T Lister J R McMunn Sir J Magill G A Moore C K Morgan Bernard Myers Sir T Myles J A Nixon T H Openshaw J H Parsons W Pasteur A G Phear, F M Pilcher C E Pollock O L Robinson Sir A Mayo Robson Sir R Ross A D Sharp J Sherran T Sinclair S Maynard Smith A B Soltau Sir J Purves Stewart W Taylor G St C Thom Sir W Thorburn H H Tooth A H Tubby W Aldren Turner C R Tyrrell Sir C Gordon Watson C M Wenyon Sir W I C Wheeler Sir Hale White W H Willcox Sir Lisle Webb A E Webb Johnson A S Woodwark Sir F Worthington

Brevet Lieutenant Colonel W C Smales

Lieutenant Colonels A Balfour F S Brereton G S Buchanan, Sir J R A Clark F F Fremantle M P H French Sir J Kingston Fowler Wardrop Griffith Sir A Garrod D Harvey F R Hill G M Holmes P S Lelean Sir F Mott Sir H M Rigby P Sargent A B Smallman E C M Smith T L Twiss A White Robertson

Majors P G Easton R C Elmslie G A D Harvey A D Stirling

Captain A R Wright

Sir Charles Ballance Dr C Hubert Bond Sir Napier Burnett Viscount Burnham the Right Hon Winston Churchill M P, Sir Herbert Creedy Sir F Marriott Cooke Lord Desborough the Earl of Donoughmore the Earl Fitzwilliam Sir W Fletcher Lord Harris Sir J Hodsdon Mr Vesey G M Holt Dr N G Horner Sir Alan Hutchings Viscount Knutsford Lord Lee of Fareham, Sir W Lawrence Dr V Warren Low Sir Ivor Phillips Sir A Reid Marquess of Salisbury Earl of Scarbrough Sir Samuel Scott Lord Somerleyton Dr S Squire Sprigge Sir Arthur Stanley Lord Edmund Talbot Rt Hon H J Tennant Sir J Lynn Thomas Dr E H Turner Sir T Jenner Verrall Dr N Walker Sir Edward Ward Lord Wavertree

The evening closed with cordial votes of thanks from the company to Lord Midleton, as chairman, and Sir Edward Ward, as secretary

THE NATIONAL COUNCIL FOR COMBATING VENEREAL DISEASES.

THE fifth annual meeting of the National Council for Combating Venereal Diseases was held in the Barnes Hall of the Royal Society of Medicine on June 7th, when there was a very large attendance.

Lord SYDENHAM, who occupied the chair, said that owing to advancing years he was retiring from the Council as President, but expressed his deep interest in the movement, which had never been so vigorous or so progressive as at the present time. Beginning in London on a small scale, the organisation had now branches all over the country.

Few people realised, he said, the difficulties with which the Council had to deal, involving as they did both problems in physiology and psychology, as well as the opposition of ignorance and prejudice. The work needed the coöperation of medical men and laymen and women, while the moral side required the aid and support of religious bodies, who, however, in many cases did not seem to realise the great danger to individuals and to the race which resulted from venereal diseases. If the teachings of the Council were universally adopted much would be done to stamp the disease out of the country. Already a vast amount of propaganda work had been done, and probably two and a half million people had been reached. A large sum of money had been spent in clinics in towns, but the rural areas had not been reached, and here the help of the general practitioner was required. The results of clinics could not be considered altogether satisfactory, for of the 175,000 people who had been treated about half had left before treatment was completed. Means would have to be found sooner or later to prevent this waste of public money. All the Dominions had set up organisations affiliated with the National Council, and the Treasury had helped in sending two commissions to eastern and western groups of colonies, aid having also been received from the Colonial Office. The Empire was thus being subjected to valuable spade work, and information was being exchanged with America. The setting up of a health section with a permanent bureau in connexion with the League of Nations would be good for society at large. Red Cross were instituting similar movements, and the cordial relations between the Ministry of Health and the Council were making for progress in many directions. But continued and united efforts were necessary to free the country from a scourge which affected the whole life of the nation and menaced the race at a time when the most vigorous citizens in mind and body were needed.

Lord ASTOR said that the Ministry of Health recognised the work of the Council to be on sound lines. In attacking disease of all kinds voluntary effort could do much which a Government could not do, and it was of vital importance that the country should have a clean bill of health. Lord Astor continued:—

The war had left a legacy of venereal disease coupled with a reduction in the birth-rate. Statistics were not available, but the attendances at institutions for the treatment of venereal diseases had increased, and he was glad that the efforts of the Ministry of Health had encouraged people to come and be treated. Deaths from syphilis, general paralysis of the insane, and locomotor ataxy were not increasing. This, however, did not mean that the extent of venereal disease was not serious. Compulsory treatment was being advocated, but it was first necessary to provide enough facilities for diagnosis and treatment for those affected. Compulsion would inevitably lead to concealment and failure to apply for treatment. During the war venereal disease was reduced more by women police and drink control than by the 40D and 13a regulations. State interference and compulsion on the continent had not produced populations which were cleaner or healthier in mind and body than our people, while in this country the C.D. Acts had never been a success. In regard to "packets," their value had not been proved, and the risk to health and the welfare of the community would be serious. Their use in the army, where the men could be regularly examined, and where they could be punished or controlled, was a different matter. It was necessary to stimulate medical education and bring the general practitioner more into touch with modern medical science, and the Ministry of Health proposed to work through the medical schools and the V.D. clinics, of which there were now 172; but more and better ones were needed. Rural areas afforded special difficulties, for the same privacy could not be obtained as in town. Greater facilities were needed for diagnosis and treatment, with special reference to the needs of seamen and of pregnant women. The temptations of our seafaring population must be kept in mind. More hostels for girls were also wanted, and propaganda must be increased both for adults and adolescents. Finally, he hoped that the League of Nations, through its health section, would help to solve the V.D. problems as well as many others.

Lord GORRELL, who succeeds Lord Sydenham as President of the National Council, proposed a vote of thanks to Lord Astor for his address and support, which was seconded by Sir MALCOLM MORRIS, who said that in rural communities the general clinic was needed, where *all* people could go for *all* diseases, when secrecy would be kept; therefore, with regard to venereal diseases.

The proceedings terminated with a vote of thanks to the chairman.

SOCIETY FOR THE PREVENTION OF VENEREAL DISEASE.

THE first annual meeting of this society was held on June 3rd in the Barnes Hall of the Royal Society of Medicine, Lord WILLOUGHBY DE BROKE presiding.

The CHAIRMAN after recalling the origin of the society, as due to the common-sense view that to avoid contagion contact must be avoided, pointed out to his audience that, inasmuch as a little knowledge, especially uninstructed, unscientific knowledge, is dangerous in the highest degree, it was important that the truth should be made available for the public under the control and with the supervision of qualified medical authorities, such as the Ministry of Health, medical officers of health all over the country, or any other public body qualified to say what is and what is not a disinfection against venereal disease. It was for that policy that he invited the cordial coöperation of those present, and the following resolution was put to the meeting:—

> That inasmuch as the Ministry of Health has failed, and public bodies, including the London County Council, have declined, to provide the means of delayed disinfection against venereal disease at ablution centres, this meeting calls upon the Ministry of Health and upon local authorities to instruct all qualified chemists to sell such means of immediate self-disinfection against venereal disease as may be approved from time to time by the Ministry of Health or medical officer of health.

Lord Willoughby de Broke repelled the accusation brought against the society that the establishment of disinfectant centres, with information how to use them, would be a deliberate invitation to promiscuous intercourse, and denied that members of the society could be accused either of incitement to immorality, or of default from the high moral aim of attempting the promotion of public health.

Dr. C. W. SALEEBY, Sir JAMES CRICHTON-BROWNE, Sir FREDERICK MOTT, and Sir W. ARBUTHNOT LANE supported the resolution. Sir FREDERICK MOTT confirmed the two first speakers in their statements that the disabilities produced by syphilis were colossal, and said that the support of the Government to the propaganda of the society was necessary from the health and economic point of view. Sir W. ARBUTHNOT LANE, having regard to the membership of the society, said that it ought to be called the "Suicide Club," as it consisted of a body of men who made their living out of the ravages of syphilis, and who were determined to restrain or abort those ravages.

The CHAIRMAN put the resolution to the meeting and declared it carried unanimously.

Mr. H. WANSEY BAYLY, the honorary secretary, said that the progress made during the seven months of the society's existence had been most encouraging.

Two public meetings, he said, were held in London, the first at the Central Hall, Westminster, and the second at the Mansion House, under the presidency of the Lord Mayor. Medical officers of health throughout Great Britain had been circularised on three occasions, with the gratifying result that 12 councils had endorsed the policy of the society and had recommended that the opportunity of acquiring knowledge in regard to efficient and immediate self-disinfection should be given in their districts. 20,000 pamphlets had been distributed, and 15,000 leaflets of directions on demand from various centres and individuals. Provincial and colonial branches were being established, and a strong Parliamentary Committee had been formed to further the aims of the society. On the whole, the press was sympathetic, and the lectures given under the auspices of the society on the prevention of venereal disease were much appreciated. Mr. Wansey Bayly said that this society stood for the principle that it is immoral to withhold a scientific truth from the people, the knowledge of which will diminish disease, pain, and sorrow. He therefore made an appeal to each member not to consider his obligations as ceasing with the payment of his annual subscription, but to act as a centre for the dissemination of knowledge, the increase of membership, and the collection of funds.

Sir JAMES CRICHTON-BROWNE and the Rev. HUGH CHAPMAN having spoken to the report, Dr. J. H. SEQUEIRA moved that it be adopted. This was seconded by Dr. R. A. LYSTER, and the adoption of the report was carried unanimously, the CHAIRMAN taking the opportunity of testifying to the zeal and hard work of Mr. Wansey Bayly.

The meeting closed with the usual votes of thanks.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Difficulty of the Dublin Hospitals.

AT present nearly all the voluntary hospitals in Dublin are handicapped by heavy debts. While their expenses have nearly doubled their subscriptions have fallen off. Eleven of them, therefore, are uniting in a joint appeal to the public for the sum of £100,000 to pay off their debts. Sir Henry McLaughlin, who organised Red Cross appeals with great effect in Ireland, has taken on the duty of honorary organiser, and it is his intention to inaugurate and advertise the appeal by a fête to be held at Bale's Bridge in October. A public meeting was held in Dublin last week to elicit support for the hospitals, and the plans of the organisers were announced by the Lord Chancellor, and Sir Henry McLaughlin and others. It must be admitted that the attendance at the meeting was disappointing, and so far there is little evidence of public interest being aroused. But from the point of view of the hospitals the situation is critical. They cannot keep their doors open unless they get solid financial support. Even the liquidation of their debts will be at best a temporary relief. Their normal expenditure cannot again be brought within their normal means. Some new source of income must be tapped, and it is a question for those concerned in hospital management to decide whether to seek voluntary, municipal, or State aid.

It is interesting to note that the question of amalgamation of the Dublin hospitals, much discussed inside the profession last winter, is now being raised in lay circles. In a recent speech the Provost of Trinity College appealed to the hospital physicians and surgeons to give definite guidance to the public as to whether they were in favour of amalgamation or not. and there is no doubt an answer will have to be given. There may, indeed, be doubt as to whether amalgamation would cause any saving in money, but there can be no doubt that it would give greater efficiency.

Sir William Taylor's Knighthood.

The profession of Dublin has learned with much pleasure of the bestowal of the K.B.E. on Colonel William Taylor, formerly President of the Royal College of Surgeons in Ireland. He has been for many years one of the most prominent and active surgeons in Dublin. He was President of the College during two of the most strenuous years of the war. He has been consulting surgeon to the army in Ireland since early in the war, and he served abroad in the Dublin (83) General Hospital, the personnel of which he had organised at the invitation of the War Office. For his services in France he was mentioned in despatches and awarded the C.B.

The Housing Problem.

As a result of a recent inquiry held in Belfast, in an application from the city council for power to borrow £2,000,000 for the erection of houses, the Local Government Board has replied giving the corporation sanction to raise a loan of £500,000.

Health Exhibition.

The Health Exhibition organised by the Women's National Health Association and the Belfast Council of Social Welfare visited, during the week commencing May 24th, the west side of the city of Belfast, and was located at the Foresters' Hall, Divis-street, where Dr. R. J. Rowlette (Dublin) lectured on "Physical Degeneration," showing by statistical and other evidence the risk of deterioration in physique; Dr. Prudence Gaffikin on "Child Welfare," illustrating the value from the practical work of welfare centres; and Professor St. Cl. Symmers on "Milk," emphasising the importance of clean dairying and of pure milk. During the week beginning May 31st the exhibition moved to the east side of the city, where it was housed in the Mountpottinger Y.M.C.A. Lectures were delivered on three nights by Dr. W. Calwell on "Health in the Schools," who pointed out the deplorable state of the primary school premises in Belfast, and showed that, according to the opinion of the medical officer of health of Belfast, there were, out of a total of 286, only 17 first-class schools. Of the remainder, 99 were classified as "good," 89 as second-class, and 81 as third-class, and the medical officer declared that as regards the latter nothing could be done. Mr. W. J. Gilliland, F.R.I.B.A., gave an address on "Housing," in which he condemned the Irish Local Government Board plans of housing, spoke of existing streets of working men's houses as "interminable rows of unmitigated ugliness," and criticised severely the labour leaders for not allowing enough output. It was, he said, "not the workmen but the loud-mouthed demagogues who were to blame." Dr. H. L. McKisack lectured on "The Importance of a Healthy Mouth."

June 8th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Fixation of Cyanides by Tuberculin.

Two Lyons doctors, MM. Cordier and Morenas, have just discovered a new reaction of tuberculin, which may have an interesting bearing on the diagnosis of tuberculosis. They have proved that tuberculin fixes cyanides. When 3 drops of a 1 per cent. solution of iron perchloride, and 25 drops of a 1 in 100 solution of tuberculin, are added to a solution of 1 in 10,000 potassium ferrocyanide, the anticipated deep blue colour is not obtained. With 10 drops of tuberculin the colour becomes grey, and with 5, pale blue. No other human protein appears to possess this power. Applied to tuberculous individuals, this reaction would seem superior to the albumin reaction of the sputum. It would be very useful in the examination of cerebro-spinal fluid in suspected tuberculous meningitis.

Researches on the Nature of Cancer.

Interesting progress appears to have been made in the researches on the nature of cancer now being carried out in the laboratory of the Collège de France by M. Champy. Repeating the well-known experiment of Carrel, he has kept alive, and even in active mitosis, fragments of living human tissue in special media, confirming the fact that the anatomical element in cultivation reproduces indefinitely cells of the same type, kidney cells producing kidney cells, epithelial cells producing epithelial cells, and so forth. However, on prolonging the experiment he has found that after passing through a large number of cultures the new cells lose their specific characters and become young indifferent cells, such as those seen in cancer. Cancer would thus seem to be not a parasitic disease, but a definite disturbance of the normal mode of regeneration of cells, and this would explain the frequent appearance of cancer at the site of an old scar or of a chronic inflammatory process. M. Champy has been able to obtain cells of a malignant type after long cultivation of cells from a benign tumour. It would appear that in the normal state this proliferation of new cells is controlled by an inhibitory power which disappears with age or in susceptible subjects.

Antityphoid Vaccination of Children.

Professor Vincent, of the School of Military Studies at Val-de-Grâce, to whom is due the use of antityphoid vaccine prepared by sterilisation of typhoid bacilli by ether, organised during the war antityphoid vaccination of the whole army with a brilliant success, for, from the year 1918, the military typhoid mortality in France has been practically nil among 8 to 9 million mobilised men. Even at the present time cases of typhoid fever are rarely seen in the civil hospitals, and then almost always amongst the wives and children who have not undergone vaccination. The malady, however, has not yet disappeared from France, and it flourishes still in the South, particularly in Provence. M. Vincent concludes that in order to bring about the extinction of the scourge it is necessary to enforce antityphoid vaccination on the civil population, as has been done for vaccination against small-pox; it is necessary to vaccinate preferably in infancy, the infant bearing better the vaccination than the adult, with a very much slighter febrile reaction. The rule of re-vaccination at the end of three years should not be taken as absolute, as M. Vincent has been able to follow up the cases of soldiers vaccinated in Morocco in 1911 and who in 1920 still showed, at least half the number, an absolute immunity. When a person has been properly vaccinated, says M. Vincent, it is efficacious for a considerable time, and those who have been long ago vaccinated and have not been revaccinated within the recognised period, and who contract afresh typhoid fever, only present a mild type of the disease. All children ought to be vaccinated, at least in districts where cases of typhoid fever still occur.

Anaphylactic Vomiting in an Infant Treated by Injections of Milk.

An interesting observation has just been reported at the Société de Pédiatrie by M. Génévrier. A newly-born infant exhibited an absolute intolerance to milk, which he vomited immediately. A dozen attempts to feed with milk of various sorts (concentrated, butter-milk, whey, human milk, and so forth) led to more or less severe attacks of fever, vomiting, and diarrhœa. The general decline was very rapid, when it was decided to give three subcutaneous injections, one every other day, of 8, 16, and 30 minims of sterilised cow's milk. The third injection was followed by a general and local reaction of the most violent description, with rigors, vomiting, and rapid alternations of temperature; but from this moment the infant tolerated milk by the mouth in progressive doses of 5, 10, and 30 g. a day, eventually reaching 300 to 350 g. The resumption of milk feeding brought about a rapid increase of weight of more than 2 kg., and a notable amelioration in the general condition. At the moment the baby will tolerate any sort of milk.

June 5th.

Public Health.

REPORTS OF SCHOOL MEDICAL OFFICERS.

Aberdeen.—In the City of Aberdeen the number of children attending the public schools of all kinds during the year ending June 30th, 1919, was 30,879, of whom 26,093 were pupils at the 28 primary schools. Of these, 9335 were systematically examined in detail. An interesting table is given by Dr. George Rose, the school medical officer, showing the average heights and weights of the children in the year under review as compared with similar observations in 1912–13, before the war. Amongst boys, in two of the three age-groups (5 and 7 years), there was found in 1918–19 to be an increase in the average height as compared with the corresponding groups in 1912–13, the increases in these groups averaging 0·4 and 0·2 inch respectively at the earlier ages of 5 and 7 years; while at 13 years old the average height was 0·2 inch less than in the pre-war year. Among girls there was a decrease in average height in the 5 and 7 year age-groups, the average decrease being 0·2 inch in each group; while in the 13-year children the average height was exactly the same as in the pre-war year. As regards weight, among the boys there was an improvement in each group, the increase being 0·4, 0·3, and 0·4 lb. respectively. The girls, on the other hand, showed a lessened weight in each group, the average drop being 0·1, 0·2, and 0·5 lb. in the three age-periods respectively. These observations apply to 9261 children examined in 1919, and presumably a somewhat similar number in 1913. If similar comparisons were made throughout the country valuable data would be obtained as to the influence of war conditions on the nutrition of the juvenile population:

> "There seems no reason for believing that the diminished consumption of sugar has been prejudicial to health, or that the margarine, which contains a certain amount of animal fat, is not a satisfactory substitute for butter. As the present heights and weights of children compare favourably with those of pre-war times, we may conclude not only that the food allowance for children was sufficient in the amount of proteids, carbohydrates, and fats, but that there was in it a sufficient amount of vitamine, which is imperative for the health, nutrition, and growth of the young."

The condition as regards nutrition was considered to be either "average" or "above the average" in 94·5 per cent., and this in spite of the fact that from one to four decayed teeth were present in 60·2 per cent., and in 27·9 per cent. there were as many as five or more decayed. Delicate children, such as those suffering from malnutrition or anæmia, or non-infectious tuberculous disease, have been sent to the Linnmoor Home, where they have a wide expanse of moor in which to play, and also to find shade and shelter. It was found that a stay of four to eight weeks generally added between 3 and 4 lb. weight to each child—as good a result as may be obtained by a six months' stay in an ordinary open-air home. Great improvement has taken place in the cleanliness of the Aberdeen school-children, which formerly had been very defective; and not only the children, but the parents and the homes have been brought up to a decent level in this regard. The number of verminous children in the group of poorer schools has been reduced from 15·3 per cent. to 1·5 per cent., and actual dirtiness of the skin has fallen from 15·7 to 0·9 per cent. It is evident that the educational and medical authorities of Aberdeen have effected immense improvements in the last few years, and there is good reason to believe that these improved conditions will continue.

Bootle.—The county borough of Bootle has 12,993 children on the roll in the council and denominational schools, with an average attendance of 11,320. During the calendar year 1919 3683 children were inspected at the routine examinations. The number with some physical defect reached the very high percentage of 72·7, the most numerous ailments found being defective vision and squint (13·4), enlarged tonsils (7·2), lung disease (7·1), malnutrition (6·8), adenoids (2·2), and organic heart disease (2·2). The total percentage of defects, high as it is, was less than in any of the preceding four years, when it varied between 80·1 in 1918 and 87·5 in 1916; but was more than in 1914, when it was only 66·5. Dr. Allen Daley, the school medical officer and medical officer of health, draws attention in this report to what he very rightly calls "the alarming increase in the number of unvaccinated school children." The entrants found to be unvaccinated in 1914 were 9·7 per cent. of the total number examined; the proportion has increased to 12·6 in 1918 and 14·1 in 1919. The responsibility for this neglect lies in the first instance upon the parents; but the local vaccination authority cannot escape some share in this. Ultimate responsibility rests with the legislature. A comparison of the heights and weights of the children in the year under report with similar observations, before the war, in 1913 shows that amongst boys there was a very slight increase in the average height in the 5-year old group (103·8, compared with 103·6 centimetres), that of the 12-year old group (135·5) being slightly less than in the former year (136·1). Among girls there was a similar but larger increase in the 5-year olds (103·3, compared with 102·4 centimetres), but a decrease in the 12-year olds (137·3, compared with 138·0 centimetres). As regards weight, the 5-year old boys averaged 17·5 kilos (compared with 17·7 in 1913), but the 12-year old boys averaged 31·6, compared with 31·1 kilos in 1913. Among girls, the 5-year olds averaged 17·2 (compared with 17·1) and the 12-year olds 32·2 (compared with 32·5 kilos.). It cannot be said that there was any definite deterioration of health or nutrition owing to the special circumstances of the times. Dr. Daley draws attention to the fact that a considerable number of children for whom spectacles have been prescribed and obtained are found at inspection not to be wearing them. They are left at home, or broken. He recommends that class teachers should make lists of their scholars who ought to wear glasses, and insist upon these being worn. No one wishes to add to the already heavy and manifold responsibilities of the class teachers, but there can be no doubt that their influence and authority would be of the greatest use in securing the desired result. The clinic for remedial exercises, massage, and electrical treatment, under Mrs. Cartwright, principal of the Liverpool School of Massage, continued and greatly increased its good work; the number of children treated rose from 71 in 1918 to 178 during the year under review. Instruction in breathing exercises after throat and nose operations, and chest expansion generally, and the treatment of stammering and chronic ear discharge, are amongst the activities of this excellent institution. The sanitary authority propose to build an annexe to the Maghull Sanatorium for children in the pre-tuberculous condition; and sanction has been given, in response to a request by the Maternity and Child-Welfare Committee of the Corporation, for the treatment of children under school age, whose parents cannot afford private medical attention. This application of the principle, *obsta principiis,* is likely to prove economical in the long run.

URBAN VITAL STATISTICS.

(Week ended June 5th, 1920.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 18 million persons, the annual rate of mortality, which had been 13·8, 13·2, and 12·8 in the three preceding weeks, further declined to 11·6 per 1000. In London, with a population of nearly 4½ million persons, the annual rate was 11·0, or 1·1 per 1000 below that recorded in the previous week, while among the remaining towns the rates ranged from 1·7 in Acton, 4·3 in Eastbourne, and 5·5 in Leyton to 18·9 in Carlisle, 20·5 in Barrow-in-Furness, and 20·7 in West Hartlepool. The principal epidemic diseases caused 220 deaths, which corresponded to an annual rate of 0·6 per 1000, and comprised 69 from measles, 54 from infantile diarrhœa, 41 from whooping-cough, 38 from diphtheria, 14 from scarlet fever, and 4 from enteric fever. Measles caused a death-rate of 1·5 in Rhondda and 2·0 in Great Yarmouth, but the mortality from the remaining diseases showed no marked excess in any of the towns. The deaths attributed to influenza, which had been 216, 211, and 188 in the three preceding weeks, further fell to 148, and included 42 in Sheffield, 19 in London, 13 in Manchester, and 6 in Liverpool. There were 1747 cases of diphtheria and 1635 of scarlet fever under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 1797 and 1703 respectively at the end of the previous week; one case of small-pox was notified and admitted to hospital during the week. The causes of 30 of the 3962 deaths in the 96 towns were uncertified, of which 6 were registered in Birmingham, 4 in Liverpool, and 3 each in London and Blackpool.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2½ million persons, the annual rate of mortality, which had declined from 18·4 to 14·2 in the four preceding weeks, further fell to 13·6 per 1000. The 289 deaths in Glasgow corresponded to an annual rate of 13·5 per 1000, and included 10 from measles, 7 from small-pox, 4 each from whooping-cough and infantile diarrhœa, and 1 each from typhus, scarlet fever, and diphtheria. The 93 deaths in Edinburgh were equal to a rate of 14·2 per 1000, and included 2 from diphtheria and 1 from infantile diarrhœa.

Irish Towns.—The 149 deaths in Dublin corresponded to an annual rate of 18·7, or 0·4 per 1000 below that recorded in the previous week, and included 11 from whooping-cough, 3 each from measles and infantile diarrhœa, and 1 from scarlet fever. The 116 deaths in Belfast were equal to a rate of 14·6 per 1000, and included 3 from infantile diarrhœa, and 2 each from enteric fever, whooping-cough, and diphtheria.

Dr. J. H. Conyers has been appointed a Member of the Executive Council of the Colony of British Guiana.

The Services.

ARMY FEES FOR CIVILIAN DOCTORS.

CIVILIAN medical practitioners giving professional attendance to soldiers will now be paid day fees ranging from 3*s.* 9*d.* to 7*s.* 9*d.* according as the distances travelled vary from under one mile to under five miles. Night fees for similar distances will range from 5*s.* 3*d.* to 13*s.* 3*d.* Extra fees will be allowed for distances over five miles, but the limit for an ordinary visit will be £1.

ARMY MEDICAL SERVICE.

Col. R. J. Blackham is placed on half pay.

ROYAL ARMY MEDICAL CORPS.

Major R. V. Cowey to be acting Lieutenant-Colonel.

The undermentioned temporary Captains relinquish the acting rank of Major: M. C. Gardner, F. P. Joscelyne, R. S. Morshead, J. W. McKinney, D. B. I. Hallett, T. L. Hardy.

Capt. J. Y. Moore retires, receiving a gratuity, and is granted the rank of Major.

Temp. Capt. R. A. Warters relinquishes his commission on transfer to Indian Medical Service.

A. W. D. Magee to be temporary Captain.

Officers relinquishing their commissions:—Capt. J. W. G. H. Riddel (granted the rank of Major). Temp. Capts. F. E. Reynolds (Lieutenant, 2/1 Yorks Hrs. Yeo., T.F.), F. G. Bell (granted the rank of Major), J. W. Clyne, O. S. Kellett, and J. J. A. Sherry (retain the rank of Captain). Temp. Hon. Lieut. A. H. Chu (retains the rank of Lieutenant).

GENERAL RESERVE OF OFFICERS.

Late Captains, R.A.M.C., to be Majors: J. W. G. H. Riddell, J. Y. Moore, A. L. Aymer, W. T. Hare.

SPECIAL RESERVE OF OFFICERS.

Capt. W. F. McLean relinquishes the acting rank of Lieutenant-Colonel.

TERRITORIAL FORCE.

Capt. W. A. Valentine to be Major.

The undermentioned Majors resign their commissions and retain the rank of Major: W. F. McAllister-Hewlings and P. McK. Terry.

The undermentioned Captains resign their commissions and retain the rank of Captain: P. N. Creagh, S. Wyard, P. T. Catto, J. G. Hill, W. Fitzpatrick, A. Greene, J. G. McKinlay.

1st Scottish General Hospital: Capt. A. W. Falconer resigns his commission and is granted the rank of Lieutenant-Colonel.

ROYAL AIR FORCE.

Medical Branch.—Flying Officers J. Kyle and C. T. O'Neill to be Flight Lieutenants.

The undermentioned are transferred to the unemployed list: Capts. J. W. Healy, F. L. Dickson, and Lieut. F. Gill.

Dental Branch.—Flight Lieut. C. L. Colbran to be acting Squadron Leader whilst employed as Squadron Leader.

J. H. W. Fitzgerald is granted a temporary commission as Flight Lieutenant.

The King has granted permission to Temp. Capt. E. B. Jones, R.A.M.C., to wear the Cross of Officer of the Order of St. Sava, conferred upon him by the King of the Serbs, Croats and Slovenes, in recognition of his services to the Serbian wounded in 1914–1915, under the auspices of the Serbian Relief Fund.

INDIA AND THE INDIAN MEDICAL SERVICE.

Lieut.-Col. A. W. R. Cochrane, civil surgeon Agra, to be Principal, Medical School, Agra, vice Lieut.-Col. G. J. O'Meara. Department Major D. Munro, promoted acting Lieutenant-Colonel, has been granted leave. Major H. B. Steen officiates as Professor of Surgery, Medical College, Calcutta, vice Lieut.-Col. R. P. Wilson, granted leave. Major J. C. G. Kunhardt acts as Assistant Director, Bombay Bacteriological Laboratory. Major-Gen. Jennings has been appointed additional Member of Bombay Council. Medical Department Major H. H. Thorborn is posted Administrative Medical Officer, Quebla. Major C. L. Dunn, sanitary commissioner, has been granted long leave. Dr. D. D. Pandra, deputy sanitary commissioner, officiates Sanitary Commissioner, United Provinces, while Major C. L. Dunn is on leave. Lieut. F. E. Knight, on return from military duty, has been appointed Deputy Superintendent, Central Lunatic Asylum, Berhampore, Murshidabad. Capt. R. B. Lloyd, resident medical officer, Medical College, Calcutta, officiates as Chemical Examiner and Professor of Chemistry, vice Capt. Bose, granted leave. Major F. A. Barker officiates as Civil Surgeon, Port Blair, vice Major Murray. Lieut.-Col. Sing has been appointed to succeed Dr. Lankaster as Assistant Director, Nizam's Medical Services.

FOREIGN DECORATIONS.

Belgian.

Médaille du Roi Albert.—Col. G. A. Moore, C.M.G., D.S.O.

French.

Médaille d'Honneur avec Glaives (en Vermeil).—Col. A. D. Ducat, D.S.O., A.M.S. (T.F.); Capt. M. W. Paterson, O.B.E., M.C., R.A.M.C. (S.R.); Capt. R. P. Pollard, M.C., R.A.M.C. (T.F.); Capt. D. J. Scott, O.B.E., M.C., R.A.M.C. (T.F.).

Médaille des Épidémies (en Argent).—Temp. Capt. (acting Major) J. R. Anderson, R.A.M.C.

Roumanian.

Order of the Star of Roumania (with Swords).—Chevalier: Capt. D. C. L. Fitzwilliams, C.M.G., R.A.M.C. (T.F.).

Correspondence.

"Audi alteram partem."

THE STANDARDISATION OF COLOUR PERCEPTION.

To the Editor of THE LANCET.

SIR,—Mr. Herbert Parsons, in his letter to THE LANCET of June 5th, disclaims any intention to depreciate the work of Dr. Edridge-Green. But it is particularly noticeable that he has but little to say in its favour. Indeed, in the last paragraph the threat is implied of an intended tilt with Dr. Edridge-Green and his theories. Among the numerous psychologists, physiologists, ophthalmic surgeons, and others who have convinced themselves of the reality and accuracy of Dr. Edridge-Green's work no less than to the 100 per cent. of those who have failed to prove that any of his statements are wrong, the contemplated contest will doubtless be hailed as a welcome diversion in one of the most difficult of the by-paths of science. But Dr. Edridge-Green is a doughty champion; in the course of the 35 years' study of his subject he has fortified himself with an armour of research which has ensured for him victory in every contest in which he has been engaged.

It seems rather late in the day for Mr. Parsons to complain of the "judicial attitude" having been lost sight of in the reviews which have appeared of Dr. Edridge-Green's recent book. The ground of his complaint is that he thinks the author has been unduly praised for his work. Had this "judicial"—and not prejudicial—"attitude" been assumed during the many years in which Dr. Edridge-Green has struggled to gain a hearing for his theories, by the Royal Society and its clique of his opponents, the praise would have appeared not novel but natural. Again, if the Board of Trade lantern, in Mr. Parsons's opinion, is better than Dr. Edridge-Green's colour-perception lantern, how is it that the former should have been rejected and the latter chosen by the Royal Navy as the best? The fact, also, that Dr. Edridge-Green's lantern has been adopted by the navy of the United States, the Norwegian Navy, the India Office, and numerous other bodies, is obviously significant. Surely such a galaxy of support in favour of this lantern rather discounts Mr. Parsons's preferential opinion of the lantern in use by the Board of Trade. It is a curious argument to advance against Dr. Edridge-Green's lantern that it requires skilled knowledge to use it. Nevertheless, it exposes, I think, the motive of your correspondent's letter.

I am, Sir, yours faithfully,

Wimpole-street, W., June 7th, 1920. PERCY DUNN.

THE INDUSTRIAL SETTLEMENT FOR THE CONSUMPTIVE.

To the Editor of THE LANCET.

SIR,—While admiring in no small degree the distinguished preliminary work upon village settlements and industries which has been done at Papworth, I feel bound to disagree most heartily with the terminal portion of the article by Professor Sir G. Sims Woodhead and Mr. P. C. Varrier-Jones, which appeared under the above title in your issue of May 8th. The following lines appear:—

> "It may be, indeed it has been, suggested that the village settlement is an expensive method of attaining an end that might be achieved by simpler and less costly means. Is it not possible, it is asked, and would it not be equally effective, to provide workshops in town where, under a special arrangement, these consumptives may work and earn their living? Emphatically, No!"

This, I take it, is a direct condemnation of the scheme I outlined in your issue of Feb. 21st, under the heading "The Municipal Workshop," and is totally unjustified. In that article I outlined a scheme of local workshops, together with active home education, to provide for the complete convalescence of the post-sanatorium cases for whom no colony can exist and for whom ordinary industrial employment constitutes a practical death warrant. No single mode of campaign can rid us of consumption. The sanatorium, with its promised blessings, has proved to be but a link in the chain. Do not let us fall into the same trap with the village settlement and spend fortunes, which the country can ill afford, without a prospect of benefiting the community at large. The projected ten colonies for £1,000,000 will hold, roughly, 2000 ex-soldiers. What is to become of the other 38,000? Dr. N. D. Bardswell tells us that 60 per cent. of those in his area are already dead, and the rest will share the same fate before these settlements can be built. What provision can there be for 300,000 civilians? Must they be condemned to unemployment because they live in towns? Emphatically, No!

The special workshop, capable of indefinite expansion at small cost, near the patients' own homes, is the only method which can hope to cope with the numbers needing this assistance. We have yet to see that the houses, under improvement by education, will be materially detrimental to success. In Birmingham the mortality for men aged 35–45, being twice as great as the females of the same age, relieves the housing of most of the blame. As much will be done by education and improvement of social standards as by new housing.

Again, the town-dweller of the class catered for cannot be given country instincts at will. The craving for town life is irresistible, and many will return. Tuberculosis is a "social disease," and must be fought in its stronghold, the social life of the community. We need education and improved industrial conditions, with special provision in the form of "municipal workshops" for tuberculous labour, now almost entirely wasted.

I am, Sir, yours faithfully,

F. STANLEY TINKER, B.A., M.B.,
B.C., M.R.C.S., L.R.C.P.,
Tuberculosis Officer, North-East Surrey.

Wimbledon, June 3rd, 1920.

AGE AND VENEREAL INFECTION.

To the Editor of THE LANCET.

SIR,—The appended figures were given to me by a friend who did a very great amount of good work amongst V.D. patients as a Y.M.C.A. leader in France and later with the army of occupation on the Rhine. Several points are of special interest: (1) The early ages at which illicit coitus may and does begin. (2) The sharply defined maximum at the age of 18. (3) The rapid fall between the age of 18 and the age at which the men as a general rule get married. The cases were not picked and represent a series of 300 odd V.D. patients drawn from all parts of the rank and file of the B.E.F. Unfortunately, I have no figures of the exact ages of the patients nor any data of their marriages, &c. It is, however, thought that further research on these or similar lines might discover new means with which to combat and prevent venereal disease from the educational and moral points of view.

I am, Sir, yours faithfully,

G. G. JOHNSTONE, M.D.

Hampstead Way, N.W., June 7th, 1920.

Appended Table showing Analysis of 296 Cases at a Base V.D. Hospital in France.

A.	B.	C.	A.	B.	C.	A.	B.	C.
Age.	No.	%	Age.	No.	%	Age.	No.	%
8	1	0·3	18	66	22·	25	—	—
11	2	0·6	19	35	11·6	26	2	0·6
12	4	1·3	20	26	8·6	27	4	1·3
13	1	0·3	21	23	7·6	28	5	1·6
14	11	3·6	22	13	4·3	29	2	0·6
15	18	6·0	23	7	2·3	30	—	—
16	26	8·6	24	9	3·0	31	2	0·6
17	39	13·0						

Col. A indicates the ages at which the patients stated that they first had illicit sexual intercourse.

Col. B gives the numbers going wrong for the first time at the different ages.

Col. C gives the percentages of the whole going wrong for the first time at the different ages.

THE SURGICAL TREATMENT OF UTERINE AND VAGINAL PROLAPSE

To the Editor of THE LANCET.

SIR,—In answer to Dr. Blair Bell's reply in THE LANCET of June 5th to my letter published in the issue of May 15th, I beg to point out that Dr. Blair Bell appears to labour under some erroneous notions. He says I was subversive without being destructive, and apparently thinks I wished to be destructive. But I believe any unprejudiced reader of my letter will see that instead of being destructive, I strove to be constructive, and, indeed, strove to elucidate the riddle of how plastic visceral procedures are of value in the treatment of prolapse.

Another erroneous notion, which Dr. Blair Bell appears to hold, is that my impressions of prolapse are nebulous. May I assure Dr. Blair Bell that my "impressions" of prolapse are anything but nebulous. I have not laboured since 1908 at this subject without obtaining some clear and coherent ideas concerning it, and, certainly, I am prepared to argue with Dr. Blair Bell on it It is true he may not understand my words, my "strange and obscure phrases," and my argument, but I cannot help that. If he wants to learn—and he tells us he is still a student—he must try to understand, in spite of its being "tedious" and "nauseous" If he wants to ignore my work, he can do so, and since he is so satisfied with his treatment of prolapse, there is no reason why he should pay attention to me. Critical letters in THE LANCET, I take it, are not merely inserted for the benefit of a writer of an article, but for the main body of your readers who may happen to be interested in the subject, and may be led astray by the *couleur de rose* of an author.

Judging from his letter, it appears to me that Dr. Blair Bell's own ideas on prolapse are somewhat nebulous He does not seem to understand the meaning of the word "floor", or, if he supposes that the utero sacral and utero pubic ligaments, with other connective tissue attachments of the cervix, form a floor for the pelvis he is, I submit, hopelessly in error. If he really regards "the musculature of the pelvic outlet," with which he is so "concerned," the real floor of the pelvis, why does he attribute such importance to these other structures, and how does he conceive operations on them act in curing prolapse? He cannot run with the hare and hunt with the hounds. Nor does Dr. Blair Bell seem to understand the meaning of the word "congenital." He is quite at liberty to call solitary extrusion of the cervix occurring in adolescent and older virgins "congenital prolapse", he may call it what he likes But the question is whether thinking men will accept his teaching Has he any evidence that these cases are congenital? If so, why does he not publish it?

I offered in my letter an original and new idea as to the way plastic visceral procedures are of service in prolapse But Dr. Blair Bell appears not to understand this idea. He refers to it ironically in passing, its basis is presented in "another strange phrase." He apparently does not want ideas; he wants "facts and figures" I object to this attitude altogether. The value of statistics is well known; they can be "wangled" to show anything. What is required, I submit, is not facts and figures, but an interpretation of facts and figures In his lecture Dr. Blair Bell gave us plenty of facts but no interpretation of them; as to figures, we have a 99 per cent. cure out of 400 cases But, concerning these, we have some interpretation—that many patients get well, whatever the treatment.

In conclusion, may I express the pious hope that Dr. Blair Bell may attain his ambition of learning "how to reach the 'zenith'" of the surgical treatment of prolapse? It has been a long and tedious business getting as far as we have, as students of its history know, and men are still dubious As regards my own ideas of advance—my "methods and figures"—Dr. Blair Bell may rest assured they will be published in my own good time.

I am, Sir, yours faithfully,

Rugby, June 5th, 1920 R. H. PARAMORE.

THE FOUNDATIONS OF PITY.

To the Editor of THE LANCET.

SIR,—Your interesting article on the Prophylaxis of Shell Shock in THE LANCET for May 29th attributes the drawing of the distinction between pity as an emotion and pity as a motive to Robert Louis Stevenson. Dr. John Brown, however, in his immortal "Rab and His Friends" (published in 1858), in reference to the students running to the operating theatre to get good seats for witnessing the removal of poor Ailie's breast, says —

> 'Don't think them heartless they are neither better nor worse than you or I they get over their professional horrors, and into their proper work, and in them pity, as an *emotion*, ending in itself or at best in tears and a long drawn breath, lessens,—while pity, as a *motive* is quickened, and gains power and purpose It is well for poor human nature that it is so'

I am, Sir, yours faithfully,

Harley street, W, June 4th, 1920 J. DUNDAS GRANT.

Medical News.

EPSOM COLLEGE WAR MEMORIAL FUND.—A meeting of old Epsomians interested in the war memorial will be held at the offices of the school, 49, Bedford square, W.C, on Thursday, June 24th, at 5 P.M. 1. To discuss the immediate erection of a tablet of commemoration, as it is not possible to begin the chapel rebuilding for some time. 2. To meet the committee specially appointed to collect subscriptions and donations 3 To decide on the form which the tablet is to take

UNIVERSITY OF CAMBRIDGE.—The sum of £165,000 has been received for the building and maintenance of a department of biochemistry on a site provided by the University, and for the endowment of a chair and a readership The benefaction is derived from the residual estate of the late Sir William Dunn, who appointed the directors of the Commercial Union Assurance Co. as trustees for its disposal

UNIVERSITY COLLEGE, LONDON. A DEPARTMENT OF APPLIED STATISTICS —The new buildings presented by Sir Herbert Bartlett to University College, London, to serve as a Department of Applied Statistics, were opened formally last week by the Minister of Health Dr Addison, in declaring the buildings open, emphasised the fact of the value of applied statistics, and implied that many of our social figures were in an incomplete and unsatisfactory condition He pointed out that Professor Karl Pearson, as Galton professor, had, with the assistance of his staff, turned out through the department admirable services during the war, especially to the Department of Munitions, and he made a strong appeal for money to equip adequately the splendid premises due to Sir Herbert Bartlett's generosity The many directions in which the use of applied statistics is necessary frequently escape the notice of medical men, who regard this scientific work, in relation to theirs, as being mainly concerned with the figures of mortality, of census taking, and of disease incidence, whereas the study of, for example, anthropology and heredity equally demand accurate mathematics

STATISTICS FROM MATERNITY INSTITUTIONS AND FROM CHILDREN'S HOMES AND HOSPITALS.—The Minister of Health is demanding certain information from all institutions receiving resident children under 5 years of age The details required include the number of cases admitted, average duration of stay, reasons for admission, condition on discharge, number of cases of infectious disease and number of deaths, with date and cause Immediate information of all deaths from epidemic diarrhœa is to be given In regard to maternity homes and hospitals the information is to include the number of cases admitted, the average duration of stay, the number of cases delivered by, respectively, midwives and by doctors The cases for which medical assistance was sought by the midwife are to be classified according to the reasons for appealing for assistance and the period at which this was required The number of cases of puerperal sepsis, of a rise of temperature above 100 4° F for 24 hours, with rise of pulse rate, of ophthalmia neonatorum, of "inflammation of the eyes, however slight," of artificial feeding, and of maternal and fœtal deaths, have all to be recorded, with details of causes, results of treatment, and in fatal cases, of post mortem findings The Minister also requires immediate and detailed information of every case of maternal mortality occurring in the institution, or due to illness contracted in the institution, and every case of notified puerperal fever.

THE Board of Education has notified that the Draft, dated March 19th, 1920, of the Board of Education (Higher Education, Medical Inspection and Treatment) Regulations, 1920, has been published for the required period, and has now been confirmed by the Board without amendment. The Draft now becomes the Board of Education (Medical Inspection and Treatment, Higher Education) Regulations, 1920, dated May 20th, 1920, and copies can be purchased through any bookseller (price 1*d.*), or directly from H.M. Stationery Office, Imperial House, Kingsway, London, W.C. 2 (price by post 1½*d.*).

LONDON DERMATOLOGICAL SOCIETY.—The annual general meeting of this society will be held at 4.30 P.M. on Tuesday, June 15th, at St. John's Hospital, 49, Leicester-square, W.C., when the election of officers will take place. The nominations of the council for principal offices are as follows: President, Dr. R. Prosser White; honorary treasurer, Dr. W. Knowsley Sibley; honorary secretary, Dr. Maurice G. Hannay. At 4.45 P.M. clinical cases will be shown.

INDIAN MEDICAL SERVICE DINNER.—The annual dinner of the Indian Medical Service was held at the Trocadero Restaurant on Tuesday, June 8th. The chair was taken by Major-General G. F. A. Harris, C.S.I., and more than 70 members were present. There were no set speeches, but Colonel R. H. Elliot and General Sir Havelock Charles spoke on the subject of the suggested alterations in the conditions in the Service, and pointed out that though the improvements were not all that might be desired, yet they were all that could be obtained at the present time, and that they constituted an enormous advance on the conditions now obtaining. Stress was laid on the services in this connexion of the *British Medical Journal* and its editor, Dr. Dawson Williams. The following members were present:—

Major-Generals: Sir R. Havelock Charles, T. Grainger, P. Hehir.

Colonels: C. W. Carr-Calthrop, J. Crimmin, V.C., Sir P. J. Freyer, C. M. Goodbody, D. E. Hughes, G. B. Irvine, W. H. Ogilvie, J. J. Pratt.

Lieutenant-Colonels: A. Alcock, W. G. P. Alpin, J. Anderson, W. R. Battye, D.S.O., A. T. Bown, R. Bryson, J. T. Calvert, R. H. Castor, D. G. Crawford, C. Duer, R. H. Elliot, F. F. Elwes, S. C. Evans, A. B. Fry, G. H. D. Gimlette, T. A. Granger, H. Greany, A. W. M. Harvey, J. G. Hulbert, C. H. James, S. P. James, J. Lloyd Jones, J. G. Jordan, R. W. Knox, Clayton Lane, S. Little, T. R. Mulroney, R. A. Needham, A. H. Nott, S. Browning Smith, R. F. Standage, R. Steen, T. H. Symons, W. H. Thornhill, J. H. Tull Walsh, Ellacott L. Ward, J. W. Watson, H. R. Woolbert, H. G. L. Wortabet, A. C. Younan.

Majors: W. M. Anderson, A. Cameron, S. Chuckerbutty, R. G. G. Croly, J. Forrest, C. A. Godson, E. T. Harris, A. H. Napier, E. S. Phipson, M. Purvis, J. J. Robb, W. C. Ross, W. R. J. Scroggie, F. E. Wilson.

Captains: U. J. Bourke, W. B. Keyworth, N. N. G. C. McVean, J. G. B. Shand, H. Stott.

The guests were the editors of the *British Medical Journal* and *The Lancet*.

ROYAL NAVY MEDICAL CLUB: ANNUAL DINNER.—The annual dinner of the Royal Navy Medical Club took place at the Trocadero Restaurant on May 28th. The Medical Director-General of the Navy, Surgeon Rear Admiral Sir Robert Hill, K.C.M.G., C.B., C.V.O., presided. The guests of the evening were Sir George Lenthal Cheatle, K.C.B., C.V.O., and Surgeon Commander E. J. Steegman, O.B.E., R.N.V.R. The following members were present:—

Surgeon Rear Admirals: P. W. Bassett-Smith, C.B., C.M.G.; W. Bett, M.V.O.; J. Chambers, C.M.G.: G. A. Dreaper; D. T. Hoskyn; Sir D. J. P. McNabb, K.B.E., C.B.

Surgeon Captains: O. W. Andrews, C.B.E.: C. M. Beadnell; E. C. Cridland; J. F. Hall, C.M.G.; M. H. Knapp; F. W. Parker, O.B.E.; E. A. Penfold, D.S.O.; W. H. S. Stalkartt.

Surgeon Commanders: E. L. Atkinson, D.S.O.; A. R. Bankart, C.V.O., K.H.P.; G. D. Bateman; C. T. Baxter; K. D. Bell; R. St.G. S. Bond; C. J. E. Cook; F. J. A. Dalton, C.M.G.; J. S. Dudding; J. H. Fergusson; A. F. Fleming, D.S.O.; A. Gaskell, C.B., O.B.E.; R. Hughes; W. W. Keir, C.M.G.; H. A. Kellond-Knight; R. H. McGiffin, O.B.E.; P. M. May; N. S. Meiklejohn, D.S.O.; J. O'Hea; J. H. Pead; B. P. Pick; S. Roach; M. L. B. Rodd, O.B.E.; R. A. Ross; J. Stoddart; E. Sutton, C.M.G.; J. A. Thompson; A. J. Wernet.

Surgeon Lieutenant Commanders: J. H. B. Martin; F. L. Smith; H. E. R. Stephens, O.B.E.

CONFERENCES ON MATERNITY AND CHILD WELFARE.—In connexion with the Baby Week celebrations conferences will be held at Leeds on June 30th, at Manchester, Brighton, Bradford, and Wrexham early in July, and at Crewe in September. The subjects to be discussed will include (*a*) Widows' Pensions; (*b*) The Home and its Substitutes for the Care of Young Children; (*c*) Infant Welfare Work; (*d*) The Decay of Parenthood. Local health, sanitary, maternity and child welfare, and Poor-law authorities throughout the country, as well as voluntary organisations, are cordially invited to appoint delegates to attend the conferences, and all persons interested will be welcomed. Further particulars and tickets (1*s.*) will be forwarded on application to Miss Halford, secretary National Association for the Prevention of Infant Mortality, 4, Tavistock-square, London, W.C. 1.

DOWN TUBERCULOSIS SANATORIUM.—As a result of the Local Government Board's recent inquiry into the application of Down County Council for sanction to borrow £27,000 for the purpose of purchasing Craigavon as a sanatorium for consumptives, the County Council has received from the Board a letter stating that:—

> "In the Board's view the main issue raised in the inquiry turns on the conflict of public interest—on the one hand of the need of county Down patients for tuberculosis treatment, and on the other of the welfare of Belfast. Seeing that the Belfast Corporation as the local authority have publicly, and on grounds which were not refuted, represented the scheme of the Down County Council as injurious to the development and progress of the county borough, the Board can only come to the conclusion, though with some regret, that the proposition is not one to which they should afford facilities by consenting to the application of a loan."

THE SALARIES OF SCHOOL MEDICAL OFFICERS.—The Devon Education Committee recently advertised in the daily press for a school medical officer at a salary of £400 to £500 per annum. There was one applicant, who received the appointment, but within a few hours he withdrew from the post. A "locum tenens" was then appointed at a salary of 10 guineas weekly. At the last meeting of the committee a discussion took place upon the matter, some of the members wishing that the usual salary of £500 to £650 a year should be given to the school medical officer, but eventually it was decided to ask the present "locum" if he would take the appointment permanently at the salary of £400 to £500 per annum. The county medical officer of health, however, informed the committee that its offer would be quite useless.

SOUTHMEAD INFIRMARY, BRISTOL.—The Guardians' Infirmary at Southmead has been in the hands of the army authorities since its completion in August, 1914. The guardians had not previously been using the building, which was actually finished only after the army authorities had entered into possession. The medical staff now arranged for the institution is as follows: Medical superintendent, Mr. R. H. Norgate, for many years medical officer at the Stapleton and Eastville Institutions; two assistant medical officers about to be appointed. The guardians have also arranged, as a commencement, to appoint as visiting or consultant medical officers: Physician, Dr. J. A. Nixon; surgeon, Dr. H. G. Kyle; physician for children's diseases, Dr. O. C. M. Davis; surgeon for diseases of the ear, nose, and throat, Dr. E. Watson-Williams; dental surgeon, Mr. George F. Fawn.

PROPOSED AMALGAMATION OF BRISTOL HOSPITALS.—The present position of the plans for union of the Bristol hospitals is that, although some progress has been made, the uncertainty as to the attitude of the General Hospital prevents any active steps being taken. This uncertainty will probably be resolved before long, as the hospital governors are called for a meeting in a few days' time. The following resolution, passed at a special meeting of the Hospital Committee on May 18th, will be laid before the governors:—

> That the committee of the Bristol General Hospital, after careful consideration and full discussion with the members of the honorary staff, record their opinion that, in view of the uncertainty of the provisions of the Bill which it is understood is now being prepared by the Ministry of Health, they cannot see their way to accept the suggested scheme of amalgamation of the Bristol hospitals, particularly having regard to its proposal for the immediate and irrevocable transfer of all the buildings, investments, and other assets to a new authority. The committee will, however, gladly consider any proposals for coöperation or coördination which are calculated to benefit the sick and improve medical education.

This resolution has an air of finality about it, but since it was passed two things have happened which may perhaps furnish a foundation for some discussion. The first is the publication of the interim report of the Medical Consultative Council. This removes some of that uncertainty as to the future of hospitals which the resolution expresses, and shows (with peculiar force, inasmuch as Bristol is the "teaching hospital" centre of the Consultative Council's illustrative map) that the supreme position in the projected grouping of hospitals will go to that one which is closely allied to a medical school. The second event which bears upon the resolution is the acceptance by the Children's Hospital of the amalgamation scheme, on condition that its buildings are used for a children's hospital and not diverted to another purpose. On the one hand, this may be regarded by the General Hospital as a precedent which it might usefully adopt—i.e., of joining the proposed amalgamation on condition that its buildings and invested capital were reserved for those purposes for which they were originally accumulated. On the other hand, the union of the Royal Infirmary and the Children's Hospital will in any case enable Bristol to play the part of "teaching hospital" centre to the South-West of England, for the two hospitals together provide over 500 beds in close contiguity with the University, and the General Hospital may feel that since this purpose is thus provided for, it has no need to aspire to any position above that of the "secondary health centre" of Lord Dawson's report.

The Incorporated Society of Trained Masseuses—The annual Members' Conference will be opened on June 24th at Mortimer Hall, Mortimer street, London, by Professor Arthur Keith

Overseas Nursing Association—The annual meeting of this association will be held on Thursday, June 24th, at 3 30 P M , at Norfolk House, St James's square S W by permission of the Duchess of Norfolk, when H R H Princess Beatrice will be present Viscount Gladstone will preside over the meeting of supporters

48th General Hospital—The first annual dinner of this unit will take place at the Piccadilly Hotel (Adams' Room), London, W , on June 24th, at 7 30 P M Dinner 21*s* , exclusive of wines Those who intend to be present are asked to communicate at once with Dr B Holroyd Slater, St Luke's Hospital, Bradford

Royal Institution—A general meeting of the members of the Royal Institution was held on June 7th, Sir James Crichton Browne, Treasurer and Vice President, in the chair, when the special thanks of the members were returned for a gift of £1000 in the name of the late Dr Frederick Du Cane Godman, F R S , per Dame Alice Godman D B E

A Great Hospital Closed—In view of the financial position of the National Hospital for the Paralysed and Epileptic, Queen square, W C , the board of management has been obliged to close the in patient department and has directed that no further patients are to be admitted after the current week Notice has been sent to the 144 patients on the waiting list that they cannot be taken in

London School of Clinical Medicine The Seamen's Hospital Greenwich—A course of operative surgery, specially adapted to the needs of general practitioners will be held from June 21st to July 28th, meeting on Mondays, Tuesdays, and Wednesdays at 2 30 P M The inclusive fee for the course is 10 guineas, and applications should be made to the Dean at the Seamen's Hospital, Greenwich, from whom further particulars can be obtained

Ladies Medical Golfing Society—The spring meeting of this society was held at Stanmore Golf Club (by kind permission) on June 3rd The Canny Ryall Cup for the best score under handicap was won by Mrs Grainger Harrison, 95 – 8 = 87, Mrs Farquhar Buzzard being second, 104 – 14 = 90 In the afternoon foursomes *v* bogey were played for prizes presented by Mr Laming Evans The result was a tie between Lady Goadby and Miss Maskelyne, and Mrs Ritchie and Miss Mansbridge at all square The tie was decided on the basis of the first nine holes when Lady Goadby and her partner were 3 up, while Mrs Ritchie and her partner were only 2 up

Parliamentary Intelligence.

HOUSE OF COMMONS

Wednesday, June 2nd

Lieutenant Colonel Sir Raymond Greene asked the Secretary for India whether he was aware that Sister Eleanor M'Loughlin after serving eight years under the India Office as nursing sister at the General Hospital Rangoon Burma was granted one year's medical leave and that whilst returning to England on the ss *Mooltan*, which was torpedoed by the enemy, she lost the whole of her personal effects, and whether the Indian Government, in whose service she was at the time, could grant Sister M'Loughlin some compensation for the loss of her kit, seeing that when her claim was laid before the Reparation Claims Department at the Board of Trade the reply was that nothing could be done until Germany paid —Mr Montagu replied Miss M'Loughlin applied to the Shipping Controller for a free return passage to Rangoon, she did not apply to the India Office for compensation in respect of the loss of her personal effects on the ss *Mooltan* She was, however, granted a free return passage to Rangoon by the India Office and was offered in addition an advance of one month's pay Miss M'Loughlin gratefully accepted these concessions She subsequently resigned her appointment, however, and in view of the exceptional circumstances and as a special concession, the usual period of six months notice for which her agreement stipulated was waived, and she was given a gratuity of two months' pay and her passage from Rangoon to England was paid Miss M'Loughlin has expressed her complete satisfaction with the way in which she has been treated Compensation has not been paid by the India Office in respect of the loss of personal effects by enemy action to officers travelling to or from India, and I regret that I am unable to make an exception in the present case

Thursday, June 3rd

Salaries of Medical Men

Mr Spoor asked the Minister of Pensions whether his attention had been called to an advertisement issued by the Minister of Health inviting medical men to apply for appointments in the Ministry of Health at salaries of £1000 rising to £1400 per annum, with pension rights, &c , whether these appointments were calculated to draw medical officers from the Ministry of Pensions, and whether he could see his way to giving similar salaries and advantages to the medical staff employed by the Ministry of Pensions —Mr Macpherson replied My attention has been drawn to the advertisement in question, which related to certain appointments offered by the Ministry of Health of a permanent character requiring special scientific qualification It is, of course, open to the medical members of my staff to become candidates I cannot undertake to revise the scales of remuneration of the temporary medical service of the Ministry of Pensions which were settled so recently as January of the present year It is not yet possible to forecast the permanent medical arrangements which will be necessary for the purposes of the Ministry —Major Nall Is the right honourable gentleman taking any steps to place disabled medical men in appointments such as this?—Mr Macpherson Oh, yes, quite a large number of disabled medical men are now on the staff

National Insurance Finance

Major Barnes asked the Minister of Health if he would say what amounts had accumulated up to March 31st, 1920, to meet the liabilities arising out of national health insurance and in what hands, what was the estimated annual liability on the Act recently passed, what annual increase would be caused by increasing the benefits in the Act recently passed so as to make them 140 per cent greater than under the Act of 1911, and what annual increase would be caused if the benefits to women were on such increased basis made equal to men?—Dr Addison replied With regard to the first part of the question, the moneys accumulated under the National Health Insurance Acts up to March 31st, 1920, are as follows Investments in the hands of Approved Societies or invested on their behalf in securities selected by them (under Section 56 of the National Insurance Act, 1911) (cost) £29 000 000, investments in the hands of the National Debt Commissioners (under Section 54 of the National Insurance Act, 1911) (cost) £47,500 000, balances of cash in the several National Insurance Funds and in the hands of Approved Societies and Insurance Committees £1,500,000 With regard to the second part of the question, the estimated liability in respect of contributions and State grant arising under the National Health Insurance Act, 1920, for the period July, 1920 to July, 1921, is £36,692 000 of which £14,400 000 will be payable by insured persons £15 350 000 by their employers and the balance—namely, £6,942 000, out of moneys provided by Parliament If sickness, disablement, and maternity benefits were increased by 140 per cent over those provided by the Act of 1911, as suggested in the third part of the question, the corresponding cost on the present actuarial basis of the scheme would be increased by £17 950 000 of which £3 400 000 would fall on the Exchequer and the balance on insured persons and their employers Under the alternative scale for women suggested in the last part of the question, the total cost on the basis indicated would be still further increased by £2,600 000 of which £700 000 would be payable by the State

Monday, June 7th

Pensions Medical Boards

Mr Sturrock asked the Pensions Minister whether he could state how many boards, each consisting of three qualified medical practitioners were sitting daily in the United Kingdom and Ireland, whether the work they discharged was largely routine and could be efficiently done by one qualified man, whether the minimum fees paid to each medical man at present engaged on this work amounted to £1 11*s* 6*d* per day, and whether, having regard to economy he could undertake to alter the system prevailing —Major Tryon (Parliamentary Secretary to the Ministry of Pensions) replied There are at present 455 boards established for the United Kingdom, which sit, not daily, but only as occasion requires For example, the number of sessions held during the week ending May 22nd corresponds with the full time work of 222 boards The work of the boards is by no means routine, but is of a highly technical nature which in very few cases, if any, could be carried out by a single practitioner, and calls for expert examination and diagnosis, followed by consultation between the members in order to secure an equitable assessment The Minister has considered carefully the possibility of reducing the personnel, but he is convinced that any steps in this direction would be against the best interests both of the pensioner and the State, and would fail to achieve any real economy The ordinary fee paid to each member of the board is £1 11*s* 6*d* for each session of two and a half hours I do not regard this fee as in any way unreasonable

Appointments.

Downes, H., M.B., C.M. Edin., L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Medical Officer of Health for the Chard (Somerset) Rural District Council.

Fairclough, H., M.B., B.S. Dunelm, Medical Officer in charge of the X Ray and Electrical Department, Royal Infirmary, Sunderland.

Mackenzie, M., L.R.C.P. & S. Edin., Certifying Surgeon under the Factory and Workshop Acts for Stornoway.

Welsh, Sibyl I., M.D. Lond., M.R.C.P., Junior Assistant Physician at the Elizabeth Garrett Anderson Hospital, Euston-road, N.W.

Whitley, W. F. J., M.D. Edin., D.P.H. Oxf., Medical Officer of Health for the County of Northumberland.

Vacancies.

For further information refer to the advertisement columns.

Aylesbury, Royal Buckinghamshire Hospital.—H.S. £200.

Aylesford, Preston Hall.—M.O. £800.

Barnet, Wellhouse Hospital.—Res. Asst. Med. Supt. £250.

Barnsley County Borough.—M.O.H. £850.

Barrow-in-Furness County Borough.—Asst. M.O.H. and Clin. Tuberc. Officer. £500.

Battersea General Hospital (Incorporated), Battersea Park, S.W.—Res. M.O. £200.

Birmingham General Dispensary.—Res. M.O. £400.

Birmingham, Queen's Hospital.—Three H.P.'s, three H.S.'s, Obstet. and Ophthal. H.S., and Cas. H.S. £90 each.

Bradford City.—Asst. Bacteriologist. £600.

Brentwood Mental Hospital, Brentwood, Essex.—Locum Tenens Asst. M.O. £7 7s. per week.

Brighton, Hove and Preston Dispensary.—Res. M.O. £200.

Brighton, New Sussex Hospital for Women and Children, 4–6, Ditchling-road.—Asst. S. and Asst. Anæsth.

Bristol General Hospital.—Cas. H.S. £175.

Bristol Royal Infirmary.—H.S.'s, H.P.'s, Obstet. H.S., Cas. O., Ophthal. H.S., and Dent. H.S.

Bristol, Southmead Infirmary.—Two Asst. Res. M.O.'s. £300.

Burnley, Victoria Hospital.—H.S. £250.

Bury County Borough.—Venereal Diseases Officer. 3 guineas a session.

Bury St. Edmunds, West Suffolk General Hospital.—H.S. £200.

Cambridge, Addenbrooke's Hospital.—H.P. and H.S. £130 each.

Cameron Hospital, West Hartlepool.—H.S. £300.

Cardiff City Mental Hospital, Whitchurch, near Cardiff.—Second Asst. M.O. £350.

City of London Hospital for Diseases of the Chest, Victoria Park, E.—Asst. M.O. £150.

City of London Maternity Hospital, City-road, E.C.—Res. M.O. £100.

Coventry Education Committee.—School Dentists. £400.

Croydon County Borough.—Asst. M.O.H. and Asst. Sch. M.O. £600.

Derby, Derbyshire Hospital for Sick Children.—Female Res. M.O. £150.

Doncaster Royal Infirmary and Dispensary.—Asst. H.S. £225.

Dumfries and Galloway Royal Infirmary.—Res. H.S. and Asst. H.S. £150 and £75.

East Suffolk County Education Committee.—Dental Surgeon. £500. Asst. School M.O's. £500.

Enham Village Centre for Disabled Ex-Service Men, near Andover, Hants.—Asst. Med. Director. £500.

Erith Education Committee.—Medical Man.

Essex County Council and Tendring Rural District Council.—Asst. County M.O.H., &c. £600.

Fulham Infirmary, St. Dunstan's-road, Hammersmith, W.—Jun. Asst. M.O. £300.

Gloucestershire Royal Infirmary and Eye Institution.—H.P. £175.

Gravesend Hospital.—H.S. £200.

Hackney Metropolitan Borough.—M.O.H. £1000.

Halifax Royal Infirmary.—Senior, Second, and Third H.S.'s. £350, £300, and £275 respectively.

Hampstead General and North-West London Hospital, Haverstock Hill, N.W.—H.P., Cas. S.O., Cas. M.O. £150 each.

Hospital for Sick Children, Great Ormond-street, W.C.—P. Also Cas. M.O. £200. Also Med. Reg. and Path. £200.

Huddersfield Royal Infirmary. Sen. H.S. £250.

Hull Royal Infirmary.—Sen. H.S. £200. Asst. H.S. £150.

Huntingdonshire County Council.—Female Asst. County M.O. and Asst. Sch. M.O. £500.

Kensington Board of Guardians Institutions, Marloes-road.—Fourth Asst. Res. M.O. £250.

Leamington Spa, Warneford, Leamington, and South Warwickshire General Hospital.—Hon. S. Also Res. H.P. £200.

Leeds Public Dispensary.—Res. M.O. £200.

Leicester, City Mental Hospital, Humberstone.—Asst. M.O. £600. Also Locum Tenens Asst. M.O. 10 guineas per week.

Leicestershire County Council.—Female Asst. Sch. M.O. and Asst. Infant Welfare M.O. £500.

Lindsey County Council.—Female Asst. M.O. £550. Also Asst. Tuberc. O. and Asst. Sch. M.O. £550.

London County Council Hospital Service.—Sixth and Seventh Asst. M.O.'s. £300.

London Lock Hospital, 91, Dean-street, Soho, W.—Clin. Assts.

London Temperance Hospital, Hampstead-road, N.W.—Cas. O. £200.

Maidstone, Kent County Mental Hospital.—Jun. Asst. M.O. £300.

Manchester, Ancoats Hospital.—H.P. £150. Also Two Jun. H.S.'s. £100.

Manchester, Monsall Fever Hospital.—Sec. Med. Asst. and Third Med. Asst. £300 each.

Manchester Royal Eye Hospital.—H.S. £120.

Manchester Royal Infirmary.—H.S's.

Middlesex Hospital Medical School, W.—Senior Demonstrator in Physiology. £350.

Middleton-in-Wharfedale Sanatorium, near Ilkley.—Asst. M.O. £500.

Miller General Hospital for South-East London, Greenwich, S.E.—Res. Cas. O. £150. Also H.S. £100.

Ministry of Pensions, Medical Services Department.—Jun. Res. M.O.'s. £300.

Newcastle-upon-Tyne, Hospital for Sick Children.—Sen. and Jun. Res. M.O 's. £250 and £200 respectively.

Newcastle-upon-Tyne, Royal Victoria Infirmary.—Two Hon. Surg. Registrars.

Newport, Mon., Royal Gwent Hospital.—Two Res. M.O.'s. £200 and £180 respectively.

Northampton General Hospital.—H.S. and H.P. £200 each.

Nottingham City Asylum.—Second Asst. M.O. £400.

Nottingham General Hospital.—Cas. H.S. £300. H.P. £200. Holiday Locum Tenens. £7 7s. a wk.

Nottingham, Notts County Council.—Female Asst. Child Welfare M.O. and Asst. Sch. M.O. £500.

Portsmouth Education Committee.—Asst. School M.O. £500.

Portsmouth Royal Hospital.—H.S. £150.

Powick, Worcester County and City Mental Hospital.—Jun. Asst. M.O. £300.

Prince of Wales's General Hospital, Tottenham, N.—Jun. H.P. £120. Also Clin. Assts.

Putney Hospital, Lower Common, Putney, S.W.—Hon. Radiologist.

Rochdale Infirmary and Dispensary.—Sen. H.S. £250.

Roll of Honour Hospital for Children, 688, Harrow-road, W.—Female Anæsth. £90.

Rotherham Hospital.—Jun. H.S. £150.

Royal London Ophthalmic Hospital, City-road, E.C.—Sen. H.S. £150. Also Asst. S.

Royal Waterloo Hospital for Children and Women.—Jun. Res. M.O. £100.

St. Margaret's Hospital, Leighton-road, Kentish Town, N.W.—Medical Specialist in Diseases of Children. 200 guineas.

St. Mary's Hospital, Paddington.—Secretary. £800.

Salop County Council.—Two Asst. M.O.'s. £517 10s.

Sheffield Royal Hospital.—Asst. Cas. O. £150.

Sheffield Royal Infirmary.—H.P. and H.S. £150 each.

Shoreditch Hospital, 204, Hoxton-street.—Third Res. Asst. M.O. £325.

Shoreham, Lancing College.—Res. M.O. £500.

Shrewsbury, Royal Salop Infirmary.—H.P. £200.

Singapore, Straits Settlements, Health Department.—Asst. Health Officer. $7500.

South London Hospital for Women, South Side, Clapham Common, S.W.—Female H.P. £100.

Stafford, Staffordshire General Infirmary.—H.S. £250.

Stannington, Newcastle-on-Tyne, Mental Hospital.—Locum Asst. M.O. 7 gs.

Stockport Infirmary.—Jun. Res. M.O. £200.

Storthes Hall Asylum, Kirkburton, near Huddersfield.—Asst. M.O. £400.

University of London, King's College for Women, Household and Social Science Department.—Chair of Physiology. £800.

West Bromwich and District Hospital.—Res. H.S. £200.

West London Hospital, Hammersmith, W.—H.P. £50. Also Clin. Assts.

Westminster Hospital, Broad Sanctuary, S.W.—H.S.

Whitehaven and West Cumberland Infirmary.—Res. H.S. £225.

Wigan Infirmary.—Hon. S., P., Asst. S., and Asst. P.

Wilts County Council.—Asst. County M.O.H. and Asst. Sch. Med Inspec. £600.

The Chief Inspector of Factories, Home Office, S.W., gives notice of a vacancy for a Certifying Surgeon under the Factory and Workshop Acts at Liverpool.

Births, Marriages, and Deaths.

BIRTHS.

Altounyan.—On May 28th, at Aleppo, Syria, the wife of E. H. R. Altounyan, late Captain, R.A.M.C., of a daughter.

Candler.—On June 3rd, at Shenley, Barnfield-road, Exeter, the wife of A. L. Candler, F.R.C.S. Eng., of twin sons.

Cooke.—On June 3rd, at The Elms, Chobham, the wife of Dr. A. Ingram Cooke, of a son.

Doble.—At Valmead, Hampton Hill, Middlesex, on Wednesday, June 2nd, the wife of Temporary Captain F. Carminow Doble, R.A.M.C., of a son.

MARRIAGES.

Routh—Rogers.—On June 1st, at St. Paul's Church, Portman-square, W., Captain Laurence M. Routh, M.D., R.A.M.C., to Lyla R. Rogers, late A.A.N.S., second daughter of the late James Rogers, Esq., and of Mrs. J. Rogers, of Melbourne, Australia.

Rundle—Kerruish.—On June 9th, at Douglas, I.O.M., C. Rundle, O.B.E., M.D., of Fazakerley Hospital, Liverpool, to Florence M. Kerruish, M.R.C.S., L.R.C.P., of Douglas.

Smith—Whybrow.—On June 3rd, at the Church of the Assumption, Warwick-street, Regent-street, London, W., Hugh Smith, M.D. Lond., F.R.C.S. Eng., of Cape Town, South Africa, to Francesca, Helena, widow of Captain H. Thomson Whybrow, of Rhodesia.

Welch—Simpson.—On May 31st, at Rosslyn Hill Unitarian Church, Hampstead, Captain Cyril Howard Welch, R.A.M.C. (T.), to Catherine Harriet, second daughter of the late Alfred M. Simpson, Adelaide, South Australia.

DEATHS.

Barter.—On June 1st, at Denbigh-road, Ealing, Joseph Francis Barter, L.R.C.S. Edin., Brigade Surgeon, I.M.S. (retired), aged 87.

Liddon Green.—On June 3rd, at Hillside, Hanover-road, Weymouth, Frederick William Liddon Green, M.R.C.S., L.R.C.P., L.S.A., aged 54.

Maclean.—On May 31st, at Frognal, Hampstead, George Maclean, M.A., M.B., Inspector-General, R.N. (retired).

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W

Tuesday, June 15th

GENERAL MEETING OF FELLOWS at 5 P M
Ballot for Election to the Fellowship

MEETINGS OF SECTIONS

Thursday, June 17th

DERMATOLOGY (Hon Secretary—Henry MacCormac) at 5 P M
Cases (at 4 30 P M)
Dr Barber (1) Pityriasis Rubra Pilaris, (2) Von Recklinghausen s Disease with Acromegaly
Dr Sibley Multiple Pigmented Sarcoma
Dr Pernet (1) Extensive Cicatricial Secondary Syphilis, (2) Bilateral Morphœa (two cases)
Dr G Little (1) Trichotillomania, (2) Epidermolysis Bullosa (3) Dyschromia of Face
Dr MacCormac Granuloma

Friday and Saturday, June 18th and 19th.

TUDY OF DISEASE IN CHILDREN (Hon Secretaries—E A Cockayne H C Cameron, C P Lapage)
PROVINCIAL MEETING AT MANCHESTER

ARVEIAN SOCIETY OF LONDON, at the Medical Society s Rooms 11, Chandos street, Cavendish square, W
THURSDAY, June 17th —8 30 P M, Paper —Dr E G Little Differential Diagnosis of Some Common Skin Eruptions

OCIETY OF TROPICAL MEDICINE AND HYGIENE 11, Chandos street Cavendish square, W
FRIDAY, June 18th —8 30 P M, Annual General Meeting Paper —Dr F H Stewart Recent Work on Round worm Infection

OYAL MICROSCOPICAL SOCIETY 20, Hanover square W
WEDNESDAY June 16th —7 30 P M, Papers —Sir Horace Darwin and Mr W G Collins A Universal Microtome —Mr L Hogben The Problem of Synapsis

ECTURES, ADDRESSES, DEMONSTRATIONS, &c.

OYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East
TUESDAY, June 15th, AND THURSDAY —5 P M, Croonian Lectures —Dr A F Hurst The Psychology of the Special Senses and their Hysterical Disorders (Lectures II and III)

NDON HOSPITAL MEDICAL COLLEGE (SURGICAL UNIT), n the Units Lecture Theatre, London Hospital, E
pecial Course of Lectures open to both Students and Post Graduates
Two Lectures on Bone Grafting in Civilian Surgery—
WEDNESDAY, June 16th, AND THURSDAY —4 P M, Mr R Milne

EST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W
MONDAY, June 14th —12 15 P M, Dr Burnford Pathological Demonstration 5 P M, Dr G Stewart Syphilitic Affections of the Nervous System
TUESDAY —10 A M Dr Robinson Gynæcological Operations 5 P M, Mr Steadman Chronic General Periodontitis (Pyorrhœa Alveolaris) Its Causes, Pathology, Consequences, and Treatment (Lecture I)
WEDNESDAY —10 A M, Dr A Saunders Medical Diseases of Children 4 15 P M Mr D Armour Visit to Surgical Wards
THURSDAY —2 P M, Mr B Harman Eye Department 5 P M, Mr Baldwin Practical Surgery
FRIDAY —2 P M, Mr Banks Davis Diseases of the Throat Nose and Ear 2 30 P M, Mr Addison Demonstration of Surgical Cases
SATURDAY —12 noon, Mr Sinclair Surgical Anatomy of the Abdomen 2 P M, Dr Owen Medical Out-patients
Daily —10 A M, Ward Visits 2 P M, In patient and Out patient Clinics and Operations

SPITAL FOR CONSUMPTION AND DISEASES OF THE HEST, Brompton S W
MONDAY, June 14th —2 P M, Dr Melville X Ray Department
TUESDAY —2 P M, Sir J Dundas Grant Throat Department 2 30 P M, Demonstration —Sir J Dundas Grant Throat Cases
WEDNESDAY —10 30 A M, Dr Punch Demonstration of Museum Specimens 2 P M, Dr Gosse Cardiographic Department 2 30 P M, Demonstration —Dr Melville X Ray Selected Cases
THURSDAY —10 30 A M, Dr Burrell Artificial Pneumothorax 2 30 P M, Demonstration —Dr Bosanquet Mediastinal Disease
FRIDAY —2 P M, Dr Melville X Ray Department 2 30 P M, Demonstration —Dr Burrell Vital Capacity
SATURDAY —1 P M, Dr Batty Shaw Special Demonstration in the Out-patient Department

TIONAL HOSPITAL FOR THE PARALYSED AND EPI EPTIC, Queen square W C 1
MEDICAL SCHOOL
MONDAY, June 14th —2–3 30 P M, Out-patient Clinic Dr Collier 3.30 P M Dr Kinnier Wilson Tics
TUESDAY, June 15th —2–3 30 P M, Out patient Clinic Dr Grainger Stewart 3 30 P M, Dr Risien Russell Demonstration of Ward Cases
WEDNESDAY, June 16th —2 P M Mr Armour Surgical Treatment of Spinal Caries 3 15 P M, Dr Collier Localised Signs of Intracranial Tumours
THURSDAY, June 17th —2–3 30 P M, Out-patient Clinic Dr Farquhar Buzzard 3 30 P M, Dr Farquhar Buzzard Poliomyelitis
FRIDAY, June 18th —2 3.30 P M Out-patient Clinic Dr Gordon Holmes. 3.30 P.M, Dr Tooth Myopathy
Fee for Post-Graduate Course £7 7s C M HINDS HOWELL Dean

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland street W
MONDAY, June 14th —5 30 P M, Post Graduate Lecture —Dr Moon Aneurysm

KING S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON)
A Course of Post Graduate Lectures on Syphilis is being given by various members of the staff of King s College Hospital during the present year
FRIDAY, June 18th —9 15 P M Dr H Playfair Syphilis in Ante-natal and Obstetric Practice

NORTH EAST LONDON POST GRADUATE COLLEGE, Prince of Wales s General Hospital Tottenham N
MONDAY June 14th —2 30 P M, Mr J B Banister Gynæcological
TUESDAY —9 45 A M, Lieut Col R H Elliot Selected Eye Cases and Operations 2 15 P M, Selected Cases —Dr C F Sundell Cardiac Disease in Children 3 15 P M Clinical Lecture —Mr H W Carson Surgical Diseases of the Pancreas—Pathology and Treatment 4 30 P M, Lecture —Lieut Col R H Elliot Auto intoxication as a Factor in Eye Disease
WEDNESDAY —2 30 P M Dr W J Oliver Dermatological
THURSDAY —2 30 P M Mr N Fleming Ophthalmological Dr J Metcalfe Radiology
FRIDAY —2 30 P M, Dr C E Sundell Diseases of Children
SATURDAY —3 P M, Mr H W Carson Selected Surgical Cases
Daily —2 30 P M, Operations Medical and Surgical Clinics, &c

ST MARYLEBONE GENERAL DISPENSARY, 77, Welbeck street, Cavendish square, W
Post-Graduate Course on Infant and Child Welfare
TUESDAY, June 15th —10 30 A M, Dr E Pritchard Practical Demonstrations on the Management and Feeding of Infants and Young Children—Lecture V, The Artificial Feeding of Infants
THURSDAY —3 P M Lecture VI, The Modification of Milk

UNIVERSITY OF LONDON
Advanced Lectures in Physiology to Students of the University and others interested in the subject
A Course of Eight Lectures on the Bio-Chemistry of Sterols will be given in the Physiological Laboratory of the University, South Kensington, S W
TUESDAY, June 15th —5 P M, Lecture V, Mr J A Gardner

UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE POST GRADUATE LECTURES, at the Sheffield Royal Hospital
WEDNESDAY, June 16th —4 P M, Prof A Hall Diagnosis of Nervous Disease (III)

MANCHESTER ROYAL INFIRMARY POST GRADUATE CLINIC
TUESDAY, June 15th —4 30 P M, Lecture —Mr J W Smith Chronic Empyema its Prevention and Treatment

MANCHESTER FRENCH HOSPITAL POST GRADUATE LECTURES 24, Acomb street (behind Whitworth Park)
THURSDAY, June 17th —4 30 P M, Dr N C Haring Diseases of the Pleura

Communications, Letters, &c., to the Editor have been received from—

A —Mr A S Anderson, Northampton, Dr J M Ahern, Rochester, Major H W Acton, I M S, Lond, Dr E D Adrian, Cambridge

B —Prof W Blair Bell, Liverpool, Bramcote Sanatorium, Medical Superintendent of, Dr L S T Burrell, Lond, Board of Education, Lond, Bristol, Clerk to the Guardians Dr J Blomfield, Lond Mr H Beard, Reading, Capt W Burridge, R A M C Cosham Sir J Bland Sutton, Lond Dr A Burrows, Manchester, Mr E J Burdon, Lond

C —Dr W Cramer, Lond Sir J Crichton Browne, Lond Dr F F Caiger, Lond Dr F G Crookshank Lond Mr H Curtis Lond

D —Dr W P Dester, Turriff

E —*Epsom College War Memorial Fund* Hon Sec of Dr G S Earl, Plymouth Dr J R Earp, Philadelphia

F —Fellowship of Medicine Post Graduate Medical Association, Lond Dr J Freeman, Lond Major E G Ffrench Lond

G —Sir J D Grant Lond

H —Prof A J Hall Sheffield, Dr C W Hutt Lond Hospital for Sick Children, Lond, Dr J Haddon Denholm, Mr W Heinemann, Lond, Mrs M Hogarth, Lond, Mr J T Henderson, Pietermaritzburg, Mr P Haupt Bern

I —Ivory Cross Lond

K.—Dr W M Karshner, Washington King s College Hospital Medical School, Sec of, Dr J Kerr Lond

L —Mr J N Leitch, Sutton London Dermatological Society

M —Mr J M Munro Aviemore, Mr N Maclaren, Carlisle Dr C S Myers, Porlock, Ministry of Health, Lond, Ministry of Munitions of War, Medical Board Office, Sec of, Dr G Monod, Vichy, Dr I Moore, Lond, Mr R Morison, Newcastle-on Tyne, Ministry of Pensions, Lond

O —Prof Dr Ottolenghi, Siena, Overseas Nursing Association, Lond, Sir J O Conor, Buenos Aires

P.—People s League of Health, Lond, Dr R H Paramore, Rugby

Q —Queen Charlotte s Lying in Hospital Lond, Sec of

R.—Rockefeller Foundation New York Capt W J Rutherford, Edinburgh Royal Society, Lond Royal Naval Medical Club Dr W C Rivers Worsboro' Dale, Royal College of Veterinary Surgeons Lond, Sec of Dr B A Richmond Lond Rubber Growers Association, Lond Royal Institution Lond Mr C Rowntree, Lond Royal Society of Arts, Lond

S —Dr T L Sandall Oxford, Prof W Stirling, Manchester, Dr B H Slater, Bradford, Society of Tropical Medicine and Hygiene, Lond Society for Prevention of Venereal Diseases, Lond Hon Sec of, Prof C F M Saint, Cape Town

T —Dr F S Tinker, Banstead Mr H F Tod Lond Mr G L Thornton, Exmouth

U —*Université de Gand, Faculté de Médecine* Sec of

W —Mr W P Walsh, Lond, Dr L A Weatherly, Bournemouth, West London Post-Graduate College Prof J Wardell, Shanagolden Messrs Watson and Sons Lond West London Medico-Chirurgical Society Women s Holiday Fund Lond, Sec of

Notes, Short Comments, and Answers to Correspondents.

NOTES ON PSYCHOANALYSIS AND PSYCHOTHERAPY.[1]

BY SIR JAMES CRICHTON-BROWNE, M.D., LL.D., F.R.S.,
LORD CHANCELLOR'S VISITOR IN LUNACY.

PART II.*

SUGGESTION is a perfectly legitimate medical weapon, the assistance of which is invoked by every medical man in every prescription, but care must be taken that its nature is clearly understood. This is especially true of hypnosis. In psychotherapy its utility is unquestionable, but its influence is often short-lived, for cases thus treated are admittedly very liable to relapse. When unduly pushed or misapplied it may induce very disastrous consequences. In the war psychoneuroses suggestion has been of conspicuous use, more especially in those cases in which autosuggestion has been at the root of the symptoms. A confident prediction by a sympathetic physician that there is nothing radically wrong and that in a certain definite time, under a certain impressive course of treatment, complete recovery will take place, has often had the happiest effect. *Similia similibus curantur.* What suggestion gave suggestion has taken away. But the results of suggestion are insecure, and backslidings are frequent.

The Doubtful Value of Argument.

Of the value of argument in psychoneurotic cases I am less convinced. The rule used to be that once for all the patient should be encouraged to state fully his mental troubles, and once for all their irrationality should be explained to him, and his objections met; but to recur to the subject again and again and chop logic about it was regarded as bad policy. Lightly held erroneous impressions may be argumentatively jettisoned, but a delusion should not be given belligerent rights. In the presence of the most absolute proof of its absurdity it will stick fast, and, for my own part, I have never known a delusion worn away by controversial methods.

The Anti-repression Method.

To one psychotherapeutic expedient for which great achievements are claimed I should be inclined to demur; this is the anti-repression method, or the upheaval or facing-it-out schema, as it might be called. Repression, which is alleged to have taken so considerable a part in the production and maintenance of the war psychoneuroses, especially of the anxiety neuroses, I confess I do not clearly understand. It is described as "the active or voluntary process by which it is attempted to remove some part of the mental content out of the field of attention, with the aim of making it inaccessible to memory." It is therefore the will to forget, but the will has no such power. It cannot seize a painful or disagreeable thought or feeling by the scruff of the neck and thrust it down into unconsciousness. There is no method by which a person can voluntarily remove from consciousness some part of his mental contents. The will is not a policeman with power to order objectionable memories to move on or to shut them up in the cells below. It is undoubtedly true that by a voluntary endeavour we can modify or divert the stream of images and recollections arising in the mind. When surveying the scene before us we can, under an adequate motive, observe one point and neglect everything else. When engaged in any pursuit it is possible for us to keep out irrelevant thoughts, though arising in the current of association, but this is done, not by any forcible extrusion process but by concentrating attention on the thought or image we desire to observe or study, and leaving all outside thoughts and images to that natural fading towards the vanishing point which takes place when the light at attention is withdrawn. As regards emotional states the one thing practicable is to check or promote that part of their diffusive manifestation that is made up of movements of the voluntary muscles. The suppression of the active movements has a tendency to suppress the nervous currents that incite them. "It is a law of our constitution that the inward wave tends to die away by being refused the outward vent."

There are vehement states of sudden emotional excitement in which it is perhaps better to give free course for a time to their outward display. Anger, grief, or joy may come upon us in such overwhelming force that the current cannot be resisted; repression is impossible because attention is wholly absorbed, and the inward pressure is relieved through the safety valve of vehement demonstration, but in all emotion short of this acme it is habitual and systematic restraint that should be aimed at.

"No one," said Maudsley, "can resolve successfully by a mere effort of will to think in a certain way or to feel in a certain way, or even to act always in accordance with a certain rule, but he can, by acting on the circumstances which will in turn act on him, imperceptibly modify his character; he can learn to withdraw his mind from a certain train of thought, the activity of which will thereupon subside, and can direct it to a different train of thought which will thereupon become more active."

Its Contradiction of Accepted Principles.

The fixing of attention upon some indifferent or different thought while poignant memories occupy the mind is always a difficult, sometimes an impossible, task, but it is the only way of obtaining relief, and it is the way in which our war-worn men have sought refuge from their reminiscent troubles. Attention in them, instead of moving freely from point to point with the objects presented to it, has become riveted upon some particular idea or recollection, and has become rigid. The men have tried not to think of their life in France or Belgium or Gallipoli, to occupy their minds with other interests, and to avoid newspapers and war books.

But in doing this it appears our war patients have been all wrong. They have been practising repression, which is anathema, forcing down their war memories into mysterious depths from which they emerge now and then, in curious disguises—anxiety, depression, tremors, jumpiness, dreams, dizziness, headaches, dyspepsia, and all sorts of anomalous symptoms. During the day repression can, by an effort, be maintained, but it is relaxed when night comes and the irrepressible memories bounce up in consciousness and cause insomnia or ghastly dreams. The proper course, we are assured, for men thus afflicted is to stop repression and keep their miseries ever before them. They must be persuaded to dwell on them, to describe them to their companions, to face them, and to get accustomed to them.

Now all this seems to me to be at variance with pre-war experience, at any rate, and, must I add, with common-sense. Rubbing a raw surface has not hitherto been found conducive to healing. Surely it is the experience of mankind at large that to recall our misfortunes, sorrows, and follies is the one sure way to strengthen and prolong their hold on us, and that the sooner they are ousted by neutral or pleasant memories the better for our equanimity. Would it be prudent to recommend a hypochondriac to fix his attention on his abnormal sensations, and to keep bringing them to the surface for examination? Did any of us ever see a delusion cured by encouraging the patient to give expression to it and dwell on it? Is it not best to leave it alone and give it a chance to wither and atrophy. We "nurse our wrath to keep it warm," but it cools down if we turn to something else. "With a mental grief as with a physical pain," said Maudsley, "the right course is not to foster increased action, but to give it rest, and to allow the healthy energy of neighbouring parts to encroach gradually upon, and to subdue, the morbid action."

It is, from a hygienic point of view, the supreme virtue of the confessional that it confers what the psycho-analysts would call his much deprecated repression. By creating a belief in forgiveness it abolishes qualms of conscience which might unbalance the mind. Much melancholia has been attributable to keeping within the sphere of attention memories of faults and transgressions which should have been driven away by wholesome recreation; much, too, has been due to the hugging of sorrows which should have been discarded. Believing what I do of anti-repression, I am not surprised to find that those who practise it acknowledge many failures. I am, however, surprised to note that in a number of the cases reported as successful there is no evidence that the patients had been deliberately repressing certain painful elements in their mental content. They had simply and instinctively been trying to withdraw attention from the painful content and to fix it on other mental contents of a less painful or pleasurable kind, in accordance with the common custom of mankind. Dr. Rivers narrates an interesting case illustrating this point. It is that of an officer who "had found on the field of battle the body of a fellow officer blown into pieces, with head and limbs lying separated from the trunk, and who, from that time, was haunted by the ghastly vision of what he then saw. When he slept he had terrifying nightmares of the mangled remains of his friend, and so he dreaded to go to bed, and spent each day in painful anticipation of the night, and awoke during the night pouring with sweat." The psychotherapy in this case consisted in pointing out to the patient that the mangled state of the body of his friend showed that he had been killed outright and had been spared the prolonged suffering which is too often the fate of those who sustain mortal wounds. He brightened at once, and was ultimately discharged recovered, although he seems to have suffered from at least one terrifying dream after his discharge. Now, what psychotherapy, I would ask, is there in this? Was there ever a case of sudden death in which this euthanasia specific was not administered to the sorrowing relations? Was there ever a mourner under such circumstances to whom, not being an idiot, the consolatory reflection, for whatever it is worth, did not spontaneously occur? *But what had repression, or the relief of repression*, got to do with it? It was substitution, and not anti repression, that availed There had been no forcing down of a hideous memory It was on the surface, and was merely glossed over by the reflection that the friend's death was painless But this officer, it seems before he encountered the horrid sight that is alleged to have overcome him, had been buried as the result of a shell explosion, which had been followed by symptoms pointing to some degree of cerebral concussion, and it was, I suggest, cerebral changes due to the concussion with the lowered power *of resistance they involved that enabled the horrid* sight to take such a persistent grip of him—a grip which it gradually relaxed as these changes were rectified Then, before the simple psychical anodyne of reminding him that his mutilated friend had suffered *no pain* was administered, he had been advised to keep all thoughts of war from his mind and it was perhaps compliance with this—certainly not anti repressive advice—that did him good

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* Part I. was published in THE LANCET, June 5th, 1920 (p. 1248).

Its Application to Dreams

The anti repression policy is applicable, *we are assured*, to dreamland as well as to daily life Disquieting dreams, nightmares, and insomnia have always afflicted those who have taken part in war Sir Walter Scott noted this

> Soldier rest thy warfare o'er,
> Sleep the sleep that knows not breaking,
> Dream of battlefields no more,
> Days *of danger nights of waking*

But the appalling features of modern warfare have given to the dreams of our soldiers a peculiarly disturbing character which renders their alleviation more than ever desirable Well, that *alleviation, according to the psychoanalysts*, consists in anti repression They teach that the patient suffering from such dreams must, on going to bed, make no effort to banish the remembrance of them, but must rather recall them, lest the dream substance, buried in the subconscious, may emerge therefrom during sleep How the burial was effected is not clear, but the reason for the nocturnal resurrection is obvious enough The mind is then no longer preoccupied by opposing impressions, but is left to ruminate on its contents, and the higher controlling centres being the first to go dormant, the lower or emotional centres are *free to agitate The view that* this agitation may be prevented by its voluntary initiation, just as sleep is impending is certainly not in accord with the popular notion on the subject or with physiological principles Recurring bad dreams are common enough They grow out of the cares of peace as well as out of the pangs of war, and the accredited mode of warding them off is to occupy the subsomnolent *mind with something as remote from them* as possible The man who carries his worries to bed with him will get no sleep, or sleep with dreams in which these worries are mixed up, and of the thousand expedients that have been devised to invite sleep when it is thus coy, and to keep it clear of worrying dreams, there is not one that consists in conjuring up the worries and turning them over in the mind just when sleep is invited The *rational treatment of* insomnia is to discover the precise nature of the anxieties that are keeping the patient awake and remove them Agreed! But how is this to be done? The anxieties are often real and clamant enough, and where they are fictitious they cannot be enucleated like an encysted tumour The only way to dispose of them is to think of something else, or to circle *round them at an ever increasing distance in* thought until they are lost sight of altogether [or to blunt the sensibility of the cerebral centres by sedatives and narcotics

The Tendency to Emphasise Mental at the Expense of Physical Factors

The tendency of the psychoanalytical school appears to be to seize on and emphasise mental factors in the psychoneuroses, and to pass lightly over personal physical factors of at least equal significance *In illustration of the effects* of repression there is described the case of an able pilot in the R A F, who, when returned to duty after a crash, was ignorant of the construction of an aeroplane and denied that he had ever been in the air But surely the crash was enough to account for this state of matters, without assuming a stand up fight between fear and a sense of duty or any forced repression of a *tormenting* idea which should have been bravely confronted We find frequently ascribed to repression cases of complete amnesia in men returning from the front with a large block *of their mental life* blotted out Intense emotional stress has no doubt caused new departures in the war, but in civil practice I have never seen complete retrograde amnesia in a healthy young or middle aged man, arising out of emotional excitement or mental struggle, but I have seen it constantly as a consequence of trauma or toxæmia I would say that invariably after concussion *there is forgetfulness of the* events immediately preceding the accident, the impressions then received having been, as it were, developed but not fixed in the brain and remaining permanently irrecoverable When the amnesia exceeds this and extends back for days or weeks, then it may be safely inferred that there has been a *physical lesion* That *fear* or mental shock without physical commotion should leave complete amnesia behind it is improbable, as the rule is that objects of alarm are exceptionally impressive The whipping of boys at parish boundary lines was *intended to ingrain the remembrance* of the landmarks But the perturbation of fright in its excitement of the perceptive powers makes a more indelible stamp than even an acute bodily infliction, and it seems unlikely that fright alone should have created a big gap in memory in war neuroses men

That externally induced psychical states have played an essential part in the production of many of the war psychoneuroses is undeniable, and that the counteraction of these states by a psychical antigen self produced, or by a psychical antidote therapeutically administered, has in many cases been *eminently beneficial, cannot be gainsaid, but it remains* to be determined within what limits the psychical antidote is efficacious, and how far, when efficacious, it is assisted by concomitant physical changes The purest of the psychoneuroses are apt to set up a recurrent habit, and, if unrelieved, to run into structural changes that are beyond the reach of unaided psychical remedies

General Conclusions

In a large number of cases in which psychotherapy has been successful there have been coincident with it changes in environment, companionship, diet, and employment, which may have contributed largely to the favourable issue, and in a number of cases in which it has been unsuccessful the *lapse of time, fresh air*, exercise, games, shooting, or fishing have ultimately secured complete recovery It is quite unjustifiable to talk of the futility of voyages and rest cures and changes of scene in the psychoneuroses, which, *long before psychoanalysis*, as such, was heard of, and without any preceding psychoanalysis beyond an accurate diagnosis, have in countless cases conduced to perfect recovery When the new psychotherapy has as good a record of permanent cures as these methods of treatment it will command fuller acceptance than it does to day, and, as things stand at present, I *would not exchange for it the use of the bromides alone* The extremes to which the psychoanalysts push their panacea is illustrated by Jung's contention, in defiance of all observed facts, that the psychological factor plays a decisive *rôle in the origin* and course of dementia præcox Those of us who have watched the slow progress of the malady, sometimes from early childhood, who have noted the physical abnormalities *and signs of defective development and* degeneration which are so commonly associated with it, will not assent to that view of it

I would be the last to depreciate the importance of the psychical *factor in the causation* of insanity, *or in its treatment*, but I must again, in justice to our department, insist that psychotherapy is no new discovery Moral treatment, as it has been called, *has long been diligently carried out in* our asylums I open at random a British asylum report for the year 1857, and I find recorded under moral treatment first, occupations of many kinds—gardening, field work, *carpentry, turning*, sewing, *knitting, printing, secondly*, amusements, dances, theatricals, concerts, bowls, cricket, billiards, excursions, thirdly, instruction, lectures, and classes for modern languages, music, *and drawing*, and more than that, I find testimony borne to the restorative influence of the personal intercourse of the physician with his patients, and of the impact of the sound on the unsound mind "The *advantage*," the report says, "of the association with healthy and vigorous minds has long been recognised in the treatment of the insane Reading is no substitute Communion thus *with the thoughts of even the wisest and best* has not the influence of personal intercourse The latter is regulated according to the varying phases of the emotions, and while new images and suggestions and sympathy are poured into the wounds of the sufferer, they are adapted to his character and condition "

That the very same kind of moral treatment thus practised *in our asylums nearly three-quarters of a century ago is still* efficacious to day is evident, for Dr R T Williamson, of Manchester, as the result of his experience, recommends in psychasthenia after shell shock suitable occupations, such as netting fretwork, wood carving, sewing, knitting, basket-making field work, gardening, and motor wagon driving, games, such as draughts, dominoes, cards, and billiards, and studies, such as *foreign languages, drawing, painting photography*, and music Dr Williamson recommends also prolonged sleep, and accentuates the importance of avoiding the reading of war news, *the discussion of symptoms with* other patients, and the direction of the thoughts into new channels Sir Frederick Mott has testified to the benefit derived by soldiers suffering from shell shock at the Maudsley Hospital, *from field work, gardening, poultry keeping, metal* work, and carefully regulated physical exercises Much sound psychotherapy lurks behind the sweat of the brow.

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Further particulars will gladly be furnished by Miss Clark, 16, Coates-gardens, Edinburgh, or Miss Annie Walker, assistant secretary, E.M.M.S., 56, George-square, Edinburgh.

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MR PRESIDENT AND GENTLEMEN,—The clinical study I have made of this subject arose insensibly out of an investigation into the nature of surgical shock some years ago in conjunction with Dr. Leonard Parsons I wish at the outset to repeat the apology then offered for inevitable shortcomings in so complicated a subject, involving a familiarity with such specialised subjects as physiology and comparatve anatomy, which a clinician can hardly hope to command I am also anxious to apologise for any deficiency of clinical material brought forward. The difficulty of tracing cases after some years is well recognised, and in addition the recent dislocation of national life deprived me of much material I had hoped for

If the normal mechanism by which food is passed along the intestine depends upon a complicated and coördinated series of nerve impulses or reflexes (which are as yet imperfectly understood), clinical study of the means by which the delicate adjustment of these impulses can be deranged in disease may, in the future, throw light on many unsolved problems

Such a hope forms my excuse for attempting such a difficult subject, approached from an entirely different point of view from that of the scientific investigator, and I ask the indulgence of those whose special subjects are trespassed upon Clinical evidence is usually indirect, often misleading, even so, I hope to make my deductions as impartial as possible

A *Normal Intestinal Movements*

These are of two distinct varieties—peristaltic and rhythmic—and in connexion with these there are three factors to be considered (1) involuntary muscle, with its faculty of responding to stretching by contraction and its rhythmic properties, (2) sympathetic nerve supply, the stimulation of which inhibits the contraction of intestinal muscle, except at the sphincters, where the reverse effect is obtained (as shown by Elliott in the case of the ileo cæcal sphincter), and (3) parasympathetic nerve supply, whose action is to cause contraction of intestinal muscle, consisting of the vagus for the stomach and small intestine and the pelvic visceral nerves for the large intestine Both of these end in the junctional tissue of Auerbach's plexus

The *peristaltic wave* may be regarded as the response of the intestine to the mechanical pressure stimulus of its contents, and differs from the more rapid rhythmical waves in that each contracting segment is accompanied by a synchronous inhibition of the segment immediately distal to it The contracting segment closes on the intestinal contents which following the line of least resistance are forced into the inhibited segment, when the same process is repeated This wave of contraction and inhibition travels down the intestine driving the contents with it a process assisted by increased rhythmical contractions above (Bayliss and Starling) The rhythmic waves are not accompanied by such an inhibited segment, and their obvious function is to churn up and distribute the contents over as wide an area as possible They appear to have another function, to which I will refer in a moment

The mechanism of the true peristaltic wave appears doubtful Bayliss and Starling suggest that it is dependent on a local reflex in Auerbach s plexus though this plexus appears to be connected with the termination of the vagus fibres only Such a local reflex would appear to be unique in character

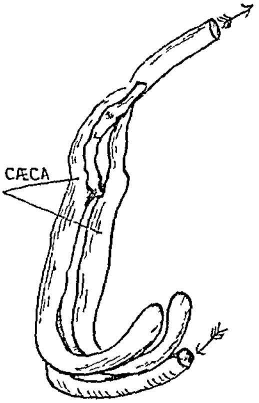
I hope to adduce clinical evidence in favour of the view that it is possible to stimulate mechanically the non medullated sympathetic fibres in their course *If this is really so, is it not possible that the contraction, elicited by the mechanical stimulus of intestinal contents, is itself responsible for exciting mechanically the intramural inhibitory sympathetic fibres to the segment immediately in front?*

Further the function of Meissner s plexus is unknown but is it not possible that this gangliated plexus is associated with these inhibitory sympathetic fibres, which receive their mechanical stimulus through its agency? Suffice it that the presence of sufficient contents in the intestine to excite a mechanical stimulus seems normally to be the exciting cause of a peristaltic wave, and perhaps to be associated with a stimulation of the intramural efferent sympathetic fibres in the segment concerned

A reference to comparative anatomy teaches us that the intestinal tract develops its modifications to suit the character of the food If we exclude the most primitive forms where the small and large intestine are in direct linear continuity (the differentiation being characterised by numerous variations from a mere increase in calibre to the development of large symmetrical pouches or cæca) for present purposes we may classify the types roughly into those found in herbivora at one extreme and carnivora at the other Thus speaking broadly, in herbivora the food is very bulky, difficult to digest and contains a minimum of nutritive elements in a maximum of bulk In such animals the cæcum with appendix is developed and highly specialised as a propelling organ to a marked degree (e g, the rabbit) It seems evident that the highest differentiation of small from large intestine evidenced by a rectangular junction of the two so cuts off the one from the other that a separate mechanism is developed for the initiation of the peristaltic waves along the large bowel Food therefore, collects in the large coiled cæcum and appendix until its bulk is sufficient to elicit by a mechanical pressure stimulus peristaltic contractions along the axis of the large intestine

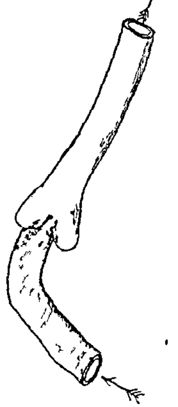
At the other extreme are those types whose food becomes more and more concentrated in a progressively decreasing bulk In these types it is clear that if distension by bulk were to be the principal factor in initiating peristalsis the food would have to collect for an unnecessarily long period before this would be effected Accordingly, the necessity for the cæcum and appendix as a propelling organ disappears as we approach these higher types culminating in man, where we find as usual the involution of the appendix characterised by its extreme variability in size and position This contrast is particularly well illustrated by a comparison of the types of cæca found among carnivorous and herbivorous birds the former having very short broad, symmetrical pouches while in the latter the symmetrical cæca are thin narrow necked and very long (Huntingdon) (See Figs 1 and 2)

FIG. 1



Cæca of herbivorous birds (the hen) (After Huntingdon)

FIG. 2



Cæca of carnivorous birds (double crested cormorant) (After Huntingdon)

The gradual involution of the appendix and shortening of the cæcum—i e, an approach to the human type—is illustrated in the case of some of the monkeys, while with the assumption of the upright position in anthropoid apes the resemblance becomes closer The more easily digestible food in these higher types is also submitted to a more rapid transit through the bowel after a more complete and rapid segmentation in the small intestine

These considerations seem to justify the view that whereas peristalsis may be the main mechanism of propulsion when food is bulky and slow in transit a more complex mechanism is essential when it is concentrated and largely fluid (at least when it reaches the intestine) Accordingly, in the highest types—i e, man—we find superimposed a more complex mechanism of rhythmic contractions associated with a specialisation of Auerbach s plexus which has in recent years been worked out by *Professor Arthur Keith and forms* the basis of his nodal theory

Rhythmic waves of contraction (an inherent property of intestinal muscle) are accentuated in the stomach and small intestine by the vagus in the large intestine by the pelvic visceral nerves—conjointly termed the parasympathetic—and both terminating in the junctional tissue of Auerbach s plexus *Professor Keith tells me that though Auerbach s plexus is plentiful in the lower animals he finds it more highly differentiated in the highest types This fact seems to me to support the view just expressed that a more complex mechanism of nerve impulses is developing as an adjuvant to the more primitive mechanism of peristalsis as the food decreases in bulk*

There is no need to refer in detail to the now well known ' nodal theory of Keith it is sufficient for the moment that the nodal points act as pacemakers in their own segments for the rhythmic contractions, which become feebler towards the end of a segment immediately before the next nodal point is reached Such points are found to correspond with the areas of normal delay in the passage of food as evidenced by X ray examinations

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Such a hope forms my excuse for attempting such a difficult subject, approached from an entirely different point of view from that of the scientific investigator; and I ask the indulgence of those whose special subjects are trespassed upon Clinical evidence is usually indirect, often misleading, even so, I hope to make my deductions as impartial as possible

A *Normal Intestinal Movements*

These are of two distinct varieties—peristaltic and rhythmic—and in connexion with these there are three factors to be considered (1) involuntary muscle, with its faculty of responding to stretching by contraction and its rhythmic properties, (2) sympathetic nerve supply, the stimulation of which inhibits the contraction of intestinal muscle, except at the sphincters, where the reverse effect is obtained (as shown by Elliott in the case of the ileo cæcal sphincter), and (3) parasympathetic nerve supply, whose action is to cause contraction of intestinal muscle, consisting of the vagus for the stomach and small intestine and the pelvic visceral nerves for the large intestine Both of these end in the junctional tissue of Auerbach's plexus

The *peristaltic wave* may be regarded as the response of the intestine to the mechanical pressure stimulus of its contents, and differs from the more rapid rhythmical waves in that each contracting segment is accompanied by a synchronous inhibition of the segment *immediately distal to it* The contracting segment closes on the intestinal contents which, following the line of least resistance are forced into the inhibited segment, when the same process is repeated This wave of contraction and inhibition travels down the intestine driving the contents with it a process assisted by increased rhythmical contractions above (Bayliss and Starling) The rhythmic waves are not accompanied by such an inhibited segment and their obvious function is to churn up and distribute the contents over as wide an area as possible They appear to have another function, to which I will refer in a moment

The mechanism of the true peristaltic wave appears doubtful Bayliss and Starling suggest that it is dependent on a local reflex in Auerbach s plexus, though this plexus appears to be connected with the termination of the vagus fibres only Such a local reflex would appear to be unique in character

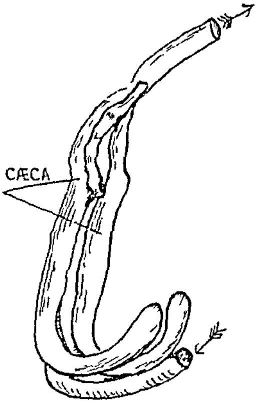
I hope to adduce clinical evidence in favour of the view that it is possible to stimulate mechanically the non medullated sympathetic fibres in their course If this is really so is *it not possible that the contraction, elicited by the mechanical stimulus of intestinal contents, is itself responsible for exciting mechanically the intramural inhibitory sympathetic fibres to the segment immediately in front?*

Further, the *function of Meissner s plexus* is unknown, but is it not possible that this gangliated plexus is associated with these inhibitory sympathetic fibres, which receive their mechanical stimulus through its *agency?* Suffice it that the presence of sufficient contents *in the intestine to excite* a mechanical stimulus seems normally to be the exciting cause of a peristaltic wave, and perhaps to be associated with a stimulation of the intramural efferent sympathetic fibres in the segment concerned

A reference to comparative anatomy teaches us that the intestinal tract develops its modifications to suit the character of the food If we exclude the most primitive forms where the small and large intestine are in direct linear continuity (the differentiation being characterised by numerous variations from a mere increase in calibre to the development of large symmetrical pouches or cæca) for present purposes we may classify the types roughly into those found in herbivora at one extreme and carnivora at the other Thus, speaking broadly, in herbivora the food is very bulky, difficult to digest, and contains a minimum of nutritive elements in a maximum of bulk In such animals the cæcum with appendix is developed and highly specialised as a propelling organ to a marked degree (e g, the rabbit) It seems evident that the highest differentiation of small from large intestine, evidenced by a rectangular junction of the two, so cuts off the one from the other that a separate mechanism is developed for the initiation of the peristaltic waves along the large bowel Food therefore, collects in the large coiled cæcum and appendix until its bulk is sufficient to elicit by a mechanical pressure stimulus peristaltic contractions along the axis of the large intestine

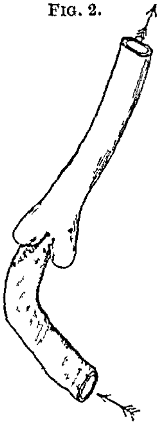
At the other extreme are those types whose food becomes more and more concentrated in a progressively decreasing bulk In these types it is clear that if distension by bulk were to be the principal factor in initiating peristalsis the food would have to collect for an unnecessarily long period before this would be effected Accordingly, the necessity for the cæcum and appendix as a propelling organ disappears as we approach these higher types, culminating in man, where we find as usual, the involution of the appendix characterised by its extreme variability in size and position This contrast is particularly well illustrated by a comparison of the types of cæca found among carnivorous and herbivorous birds, the former having very short, broad, symmetrical pouches while in the latter the symmetrical cæca are thin, narrow necked and very long (Huntingdon) (See Figs 1 and 2)

FIG. 1.



Cæca of herbivorous birds (the hen) (After Huntingdon)

FIG. 2.



Cæca of carnivorous birds (double crested cormorant) (After Huntingdon)

The *gradual involution* of the appendix and shortening of the *cæcum—i e, an approach* to the human type—is illustrated in the *case of some* of the monkeys, while with the assumption of the upright position in anthropoid apes the resemblance becomes *closer* The more *easily* digestible food in these higher types is also submitted to a more rapid transit through the bowel after a more *complete* and rapid segmentation in the small intestine

These considerations seem to justify the view that, whereas peristalsis may be the main mechanism of propulsion when food is bulky and slow in transit, a more complex mechanism is essential when it is concentrated and largely fluid (at least when it reaches the intestine) Accordingly, in the highest types—i e, man—we find superimposed a more complex mechanism of rhythmic contractions associated with a specialisation of Auerbach s plexus, which has in recent years been worked out by Professor Arthur Keith and forms the basis of his "nodal theory

Rhythmic waves of contraction (an inherent property of intestinal muscle) are accentuated in the stomach and small intestine by the vagus in the large intestine by the pelvic visceral nerves—*conjointly* termed the parasympathetic—and both terminating in the junctional tissue of Auerbach s plexus Professor Keith tells *me* that though Auerbach s plexus is plentiful in the lower animals *he finds* it more highly differentiated in the highest types This *fact* seems to me to support the view just expressed that a more complex mechanism of nerve impulses is developing as an adjuvant to the more primitive mechanism of peristalsis as the food decreases in bulk

There is no need to refer in detail to the now well known ' nodal theory of Keith, it is sufficient for the moment that the nodal points act as pacemakers in their own segments for the rhythmic contractions, which become feebler towards the end of a segment immediately before the next nodal point is reached Such points are found to correspond with the areas of normal delay in passage of food as evidenced by X ray examinations

In observing rhythmic contractions of the small intestine in the living subject, when opening the abdomen under spinal anæsthesia, I have been particularly struck with the extraordinarily small calibre maintained by the normal tone of the small intestine—a calibre which is markedly diminished by the rhythmic waves (at least, this is striking in some cases), where the diameter of the bowel appears to be reduced roughly to the size of a slate-pencil. Their function as a means of segmenting and distributing the chyme is well known; but I believe they also serve to maintain constant contractions on the intestinal contents, and when these are accumulated in sufficient bulk (i.e., particularly at the normal areas of delay towards the end of the nodal segments), to elicit that mechanical pressure stimulus which initiates peristalsis and forces the contents into the next nodal area, there to be dealt with in a similar manner.

The rhythmic waves may, perhaps, be regarded as "feelers" thrown out to ascertain the pressure, either of a bolus or collection of fluid contents; and when such a wave contracts upon contents of sufficient bulk it will, by its contraction, elicit the pressure stimulus necessary to excite a peristaltic wave which drives them onwards. These rhythmic waves, normally continuous during life, become accentuated with the physiological stimulation of the vagus, which may be regarded as the key which starts the whole complex mechanism working.

The difficulty experienced by physiologists in exciting the normal secretory and motor functions of the vagus by electrical stimulation leads one to believe that these are normally elicited reflexly by afferent impulses. Thus the sight, smell, and taste of food can initiate vagus impulses, both secretory and motor. Normally appetite is responsible, and this is usually attributed to movements of the stomach. It is difficult to see how movements of the stomach can be responsible for the sensation of appetite, since they are perhaps most marked when the stomach is full and hunger is appeased! It is, at least, not impossible that the engorgement of gastric and pancreatic glands, during the resting period, initiates an afferent vagus stimulus responsible for the sensation of hunger, and eliciting the efferent response to glands, gastric and intestinal muscle. Thus gastric movements would be coincident with, but not responsible for, the sensation of hunger. Such a view would be supported by the increase of hunger during cold weather, when surface vessels are contracted and deep structures proportionately engorged. A somewhat analogous example may perhaps be found in the afferent vagus stimulus provided by the fully oxygenated alveolus of the lung. I think there is clinical evidence in support of this view. In any event, we know that active gastro-intestinal movements and secretions are initiated by such agencies, and that this increased activity extends over the whole intestinal tract, including the large bowel, as clearly demonstrated by Hurst.

In the case of the large bowel, however, the contents being largely semi-solid or solid, the more complex rhythmic mechanism appears to be less striking, and movement of contents more dependent on peristalsis. Here the disappearance of the cæcum and appendix as an initial propelling organ is compensated by the development of a well-marked nodal point at the ileo-cæcal junction (Keith), which becomes its substitute as "pacemaker" for the ascending colon. Thus the accentuated rhythmic contractions, initiated by the vagus when food is taken into the stomach (or through the lumbar centre during defæcation), will affect the ascending colon also, and the rhythmic contractions on to semi-solid contents of large bulk will elicit strong peristaltic waves resulting in "mass movement" (the "gastro-colic reflex" of Hurst) —such a process being invigorated at each succeeding nodal segment.

The so-called "antiperistalsis," or backward movement of contents, in the colon may perhaps be explained by ordinary peristaltic contractions (evolved by the mechanical stimulus of bulky contents alone), which are too feeble to initiate a mass movement until the accentuation of the mechanical stimulus by the sudden pressure of additional food and an increase in rhythmic contractions. These feeble peristaltic contractions may be sufficient to drive the contents on a little way and allow them to slip back again, thus causing a backward and forward movement until the accentuation of the rhythmic waves initiates a mass movement onwards. Mass movement is also initiated by the act of defæcation (Hurst), the accentuated rhythmic waves being started by a reflex stimulation of the parasympathetic through the lumbar centre. It appears that, as we pass over the intestinal tract, the gradual change of the contents from fluid to solid is concomitant with a gradual decrease in the domination of the parasympathetic, a corresponding increase in the domination of the sympathetic (an essential factor in peristalsis), and also by a corresponding decrease in the rapidity of transit—in fact, a gradual approach to the predominating mechanism in herbivora. In other words, there is a varying adjustment between the opposing mechanisms of contraction and inhibition in different parts of the gastro-intestinal tract according to the character of the contents, resulting in the variation in the method and rapidity of distribution and propulsion already noted. Such a gradual reversal of the dominant innervation seems to me to be supported by a consideration of the secretory mechanisms. These are somewhat analogous in this respect: that whereas vagus stimulation is responsible for the initial secretion of gastric and probably pancreatic juice, the continuation of such secretions is mainly chemical. Langdon Brown has emphasised the fact that as we descend the alimentary canal the nervous factor in exciting secretion gradually gives way to the domination of the chemical. So that this excitation, initiated as a nervous impulse, is carried on in the stomach by gastric secretin from the pyloric glands (Edkins); in the pancreas by duodenal secretin, excited by the action of acid gastric chyme on the duodenal prosecretin (Bayliss and Starling); and in the small intestine by the pancreatic secretion and the mechanical stimulation of food (Starling).

In two such closely allied functions (secretory and motor), if the mechanism of one gradually changes to meet food requirements in its different stages, it should not be surprising to find a concomitant reversal in the other.

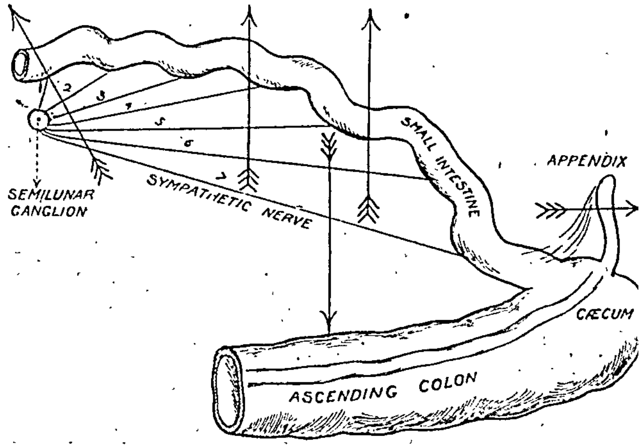
The predominance of the sympathetic or inhibitory innervation and the comparative ease with which its impulses can be excited in the lower portions of the intestinal tract play, I believe, an important part in the causation of disease.

B. *Pathological Derangement of the Normal Intestinal Mechanism.*

Lesions of the mesentery.—The difficulty of watching normal intestinal movements in man has been due to the fact that such movements cease immediately the abdomen is opened. This phenomenon has been erroneously attributed to the mere exposure of the viscera to the air. That this is not true is proved by the continuation of such movements when the abdomen is opened under spinal anæsthesia. This proves that the inhibition of intestinal movement on opening the abdomen is due to a reflex sympathetic stimulation, and it occurs even before the abdominal cavity is exposed. This is well illustrated during operations for acute obstruction. During the course of a study into the nature of surgical shock, Dr. Parsons and I made numerous blood pressure observations during abdominal operations in man and animals. We found that while local vascular effects were masked by the dominating centripetal impulses, if these were satisfactorily excluded, local changes could be well studied.

Thus, whether general or spinal anæsthesia was employed, no obvious blood-pressure variations could be attributed to manipulation or crushing the bowel wall—a fact which harmonised with its well-known "insensitiveness." On the other hand, if centripetal impulses were excluded, by operating under spinal anæsthesia, a marked rise of blood pressure arose from manipulation of, or traction on, the mesentery. Such a rise is due to a mechanical stimulation of the efferent sympathetic vaso-constrictor nerves passing through the area involved, and was proportionate to the violence of the stimulus. We found, further, that traction of the mesentery downwards induced a larger rise of blood pressure than upward traction, which indicated (Fig. 3) that the extent of the phenomenon, due to vaso-constriction, was proportionate to the number of efferent fibres mechanically stimulated. Thus, the higher up manipulations were carried out, the greater was the blood pressure excursion, until finally the greatest rise of pressure in animals was elicited by mechanical stimulation of the semilunar ganglia themselves. One fact which struck us was the domination of the sympathetic vaso-constrictor fibres in such stimuli, vagus effects being only observed during traction on the cardiac end of the stomach.

FIG. 3.



Numbered nerves stimulated by traction on mesentery in different situations. (Tyrrell Gray and Parsons.)

I was impressed at that time by the possibility that the phenomenon observed in relation to the blood-vessels might equally well apply to the intestinal muscle, possessing an analogous innervation. Accordingly, a close observation of the effect of operative manipulations under spinal anæsthesia showed that, whereas manipulations of the bowel wall alone inhibited only the tone of the section involved, manipulations of the mesentery inhibited the whole area supplied by the mesenteric nerves so stimulated. As in the case of the blood-vessels, so in the case of the bowel movements, traction downwards will inhibit a wider area than traction upwards, a larger number of nerves being involved (Fig. 3). Finally, traction and manipulation of the upper mesentery inhibits the tone of all the small intestine. We know that intestinal inhibition results from inflammatory lesions of the peritoneum, particularly the mesentery; if the possibility of mechanical stimulation to inhibition be granted, a wide field of surgical study is opened up.

Inflammatory Inhibition.

General peritonitis.—An extreme example of widespread intestinal inhibition from this cause is to be found in general peritonitis. Here the presence of pus constitutes the stimulus to the whole of the mesentery, and provides a constant irritating excitation of the efferent sympathetic inhibitory fibres to the whole intestine. The so-called "paralytic ileus" resulting is not really paralytic, but is due to continuous *active* inhibition of intestinal movement. It is to be regarded as the natural mechanism for insuring immobility and rest to an inflamed and injured structure—one of the first natural principles to be imitated in the treatment of inflammation.

Here a recognition of the nerve impulses involved guide us in the treatment of peritonitis. For, if the active efferent inhibition (persistent as long as the lesion is active) is protective in character, such an intestinal immobility is to be assisted and imitated by every means. The resulting afferent stimuli are a source of danger to the synapses of the vital centres—their mitigation is therefore indicated.

These principles largely form the basis of the Fowler treatment, which further aims at the gravitation of infective fluids to the pelvis, where the smallest number of afferent mesenteric and peritoneal nerve fibres will be stimulated To the appreciation of these factors is largely due the marked improvement in the results of the treatment of peritonitis in the last decade Nerve impulses associated with peritonitis can perhaps better be illustrated by considering a local lesion, and appendicitis may be chosen as an example

Acute appendicitis —If the comparative insensitiveness of the bowel wall, as demonstrated both by operations under local anæsthesia and by blood-pressure records be borne in mind the variability in presence, absence, or severity of symptoms accompanying the onset and progress of acute appendicitis is curious It is common experience that the symptoms often bear little relation to the lesion One feature has struck me forcibly for some years—namely, that when the appendix is extra or retro-cæcal in position the onset of vomiting and constipation is not so pronounced and is often absent This must be a common experience Indeed, it is not uncommon to find an extra or retro cæcal appendix abscess unassociated with any definite symptoms except discomfort, malaise, or a little pain, even when the local lesion is severe A perfectly free appendix, suddenly and severely infected it is true, cannot induce initial severe pain, vomiting, and constipation immediately from involvement of the adjacent peritoneum and mesentery, but it will then usually be found at operation that the mesentery is thick, œdematous, and thrombosed, and I believe that in this type the primary lesion is usually a thrombosis of the mesenteric vessels arising from acute blood infection, the appendix lesion being secondary Thus the inflamed, free, or adherent appendix stimulates its own, and the adjacent ileal, mesenteric nerves in the ileo-cæcal region, as well as those of the peritoneum, just as did general peritonitis in the case of nearly all the mesenteric nerves (The retro cæcal appendix is obviously much more limited in this respect) The result of such an inflammatory stimulus is again both efferent and afferent

The stimulus to the *efferent* nerves is evidenced by a protective inhibition of the bowel supplied by the sympathetic nerves involved—i e , the ileo-cæcal region, which would in itself delay the passage of contents, inhibit the ileo cæcal nodal point of Keith, and so lead to constipation.

The stimulus to the *afferent* ileo cæcal nerves evolves reflexly from the central nervous system a general efferent sympathetic stimulation which reacts as follows 1 Inhibition of all the intestinal muscle, particularly the large bowel which will accentuate the degree of constipation initiated by the local inhibition 2 With the inhibition of the intestinal muscle and the pyloric end of the stomach will be associated the spasm of the pyloric and ileo-cæcal sphincters 3 The stimulation of the splanchnic nerves causes an excessive secretion of suprarenal extract which still further inhibits the intestinal muscle and accentuates spasm of the pyloric and ileo cæcal sphincters Also the suprarenals being antagonistic to the pancreas the secretions of this gland will be diminished and probably to some extent intestinal secretions also *Thus pylorospasm is further accentuated* 4 That there is an associated violent afferent vagus stimulus is evidenced by the initiation of vomiting through its efferent response *Here the sympathetic stimulus does* not mask the vagus because the cardiac portion of the stomach, which is probably not inhibited by sympathetic fibres, can contract uninfluenced by such impulses This contraction of the cardiac end, when associated with sympathetic inhibition of the pyloric end and a spasm of the pyloric sphincter, explains the persistence of vomiting while the irritation of the local lesion is most active

Associated spasm of the pylorus with intestinal lesions was demonstrated by Murphy and Cannon, who pointed out that after operations on the intestine the pylorus remained closed for a variable period, depending on the situation of the trauma This reflex pylorospasm is again clearly a protective nervous mechanism to prevent the intestines functioning as long as their active inflammation calls for complete rest

How far the general sympathetic stimulus inhibits the secretory functions is doubtful That it does so through the adrenals in the case of the pancreas is probable, and in so far as secretion of succus entericus is influenced chemically by pancreatic secretion the intestinal glands may be similarly affected Clinically gastric secretion is increased

The association between the appendix and the pylorus has long been a recognised clinical fact, and the term "appendix dyspepsia" is perhaps misleading That the appendix has in itself any evident effect on the stomach I do not for a moment believe—clinical and experimental evidence is against such a view, and clinical facts adduced are too inconstant—but that the pylorus is affected reflexly in the manner shown by lesions involving the meso-appendix, the ileal mesentery, or the parietal peritoneum, from inflammation of the appendix, seems certain

I have taken the appendix as an example because of its frequency, though the same considerations naturally apply to lesions of a similar character elsewhere For example, the colicky pains caused by subacute inflammation of mesenteric glands is probably due to direct inhibition of the segment of bowel supplied by the irritated efferent sympathetic fibres I have entered in some detail into the mechanism of the nerve impulses responsible for the symptoms of acute appendicitis because it has a distinct bearing on the next aspect of my subject

Mechanical inhibition —I am now anxious to show that an analogous inhibition may result from mechanical stimulation During operations performed for the relief of acute obstruction under general anæsthesia every surgeon is familiar with the immediate protrusion of distended bowel through the incision Such patients are usually verging upon the second or depressor stage of shock, and this phenomenon is usually accompanied by a varying degree of collapse That this is not due to exposure to air or cold is shown by the fact that no such blood pressure variations are observed under ordinary conditions, nor is there the same tendency for the intestines to protrude

It might be assumed that such a sudden collapse is due to the sudden release of intra abdominal pressure That this may be a contributory factor cannot be denied, but that it is not the principal factor was shown by Dr Parsons and myself from a study of the simultaneous blood pressure, pulse and respiratory tracings in artificial distension of the bowel during sigmoidoscopy. We stated—

1 That the vaso motor variations are not due mechanically to increased pressure in the abdominal cavity For the pulse and respiratory rate are increased instead of being slowed, as would then be the case

2 That direct stimulus to the bowel wall is not responsible For our experiments have repeatedly demonstrated that manipulation of the bowel wall is without any ascertainable effects on the blood pressure

3 That distension of the intestine induces tension upon the mesentery, and from the stimulus to this structure, with its contained nerves, arises the impulse to the vaso-motor centre, to this the rise in blood pressure is responsible The stretching and stimulation of the mesenteric nerves during intestinal distension has, we believe, an important bearing on intestinal activity, blood-supply, and shock (from afferent impulses) in clinical medicine and surgery

Again, in experiments on animals the way in which distended intestines stand away from the root of the mesentery is striking There seems to be considerable evidence that distension of the intestine, beyond the normal limits at any rate, does exert a definite traction on the mesentery, and this is only to be expected on mechanical grounds if the length of its vertebral attachment is compared with that of the intestinal Such tension is naturally modified by the support of the abdominal wall, though it cannot be completely controlled when the intestines have free play for their movements I have already referred to vaso-motor and inhibitory phenomena resulting from inflammatory lesions of and experimental and operative traction on the mesentery I have also tried to show that such traction may occur from intestinal distension The results of the application of these principles in practical surgery has convinced me that there are good grounds for such an assumption, and therefore I now propose to apply these considerations to the clinical study of visceral disorders

The Development and Rôle of Mesenteric Bands.

In recent years much attention has been focussed upon various mesenteric bands found with considerable frequency in certain situations Sir W Arbuthnot Lane first described them as the crystallisation of lines of force in an attempt to support the viscera —a mechanical sequel to the assumption of the upright position An inflammatory origin has been suggested, but they are too constant in form and position to warrant this view That these develop to compensate mechanical conditions during the lifetime of an individual is most unlikely, for Professor Keith has emphasised their existence in the newborn infant, while it is not unusual to find them in varying degrees during operations on quite young children

The evolution of the large bowel in man from the types found in quadrupeds reveals its gradual *fixation* in the former as a striking feature This is as true embryologically as it is phylogenetically, and the fixation takes place by a gradual fusion of the mesentery; this is less complete in some situations than in others If we regard the present arrangement in man as transitional between that of the quadruped and the final adaptation to the upright position, we should expect to find considerable variation in the extent and method of fixation—for variation in type is one of the marked features of transition There is clinical evidence to support such a view, for almost every degree of mobility can be observed in man At the one extreme are encountered occasional instances of a perfectly free colon with a long mesentery throughout I have twice encountered this condition, and in one—a little girl of 8 years suffering from acute obstruction—a volvulus of many complete rotations was found, involving practically the whole of large and small intestine The appearances were those of nearly the whole intestine supported on a "twisted pedicle" When unravelled the arrangement approached that found in the dog

Such cases are to be regarded as extreme types of atavism At the other extreme are the well fixed colons with complete mesenteric fusion in ascending and descending colon, shortened mesentery to a high lying transverse colon, shortened and well fixed cæcum, firmly supported flexures, and a diminished loop to the pelvic colon. Between these extremes are found all transitional types in considerable variation, affecting one or every portion of the large bowel For instance, failure of mesenteric fusion and extreme mobility may affect the cæcum and ascending colon only, or together with a large loop to the pelvic colon, or both these may be associated with a pendulous and redundant transverse colon

Is it not possible that these bands represent variations in the process of mesenteric fusion and fixation in transitional types, in which occasional spurious or anomalous types of fixation may be observed? Again, the very variability in size and anatomical relationship of the appendix is an indication of its gradual involution, and I believe this to be true to some extent of the cæcum also For on several occasions I have encountered a cæcum markedly enlarged *below* the ileo-cæcal valve and hanging well into the pelvic cavity, in subjects where the mesenteric fusion was elsewhere advanced Such cases would seem to be a reversion to the type of long cæcum The most reasonable view seems to be that such bands are developmental and represent spurious efforts at fixation of the large bowel in transitional types

Situation —The commonest varieties have been described by Sir Arbuthnot Lane The most important may be enumerated—

1 Ileo-pelvic, producing the so-called Lane's kink This requires no detailed description

2 *Jackson's membrane*, which, attaching the cæcum and ascending colon to the lateral abdominal wall by a membranous sheet, sometimes develops additional thickened "constricting" bands

3 Gall bladder, pylorus, and duodenum All varieties of bands may arise from the fundus internal aspect, and neck of the gall-bladder; from the first and second parts of the duodenum, and from the pylorus These bands extend along the transverse mesocolon to its junction with the proximal and middle third of the

transverse colon; they may pass down to gain attachment to the external aspect of the ascending colon and sometimes the cæcum.

4. Membranous attachment of the cæcum and ascending colon to the proximal third of the transverse colon—this being often associated with the preceding type (3).

5. Similar attachment of the two limbs of the splenic flexure.

6. Pelvic mesocolon. The bands in this situation have been emphasised by Sir W. Arbuthnot Lane.

The first and last varieties tend, in the most advanced instances, to involve the antimesenteric border of the bowel and produce a rotation round its longitudinal axis.

There are, further, some rarer anomalies to which I should like to refer in passing.

7. Membranous adhesion of the transverse mesocolon to the anterior abdominal wall in its distal quarter or third, extending to the splenic flexure. This I have observed on three or four occasions associated with a definite prolapse. It is not likely to be seen unless looked for, owing to its remote situation.

8. Isolated round bands, the size of a stout silk ligature, are occasionally found passing from the gastro-hepatic omentum anteriorly to the stomach to the transverse mesocolon. (In one instance such a band passed from the anterior abdominal wall near the diaphragm downwards and backwards to its attachment to the anterior surface of the middle of the stomach, and was not associated with an ulcer so far as could be determined.) This was quite free, isolated, and smooth, and was associated with long-standing dyspepsia. The scar of an old duodenal ulcer was also present. In another case there were two such bands, firm, tough, and unaccompanied by any sign of local inflammation, passing across the stomach vertically from the gastro-hepatic omentum. When the transverse colon was pulled downwards both these bands markedly indented the anterior gastric wall, one over the pyloric antrum and the other about two inches to the left. Their removal, together with that of a "controlling appendix," established a cure of somewhat severe gastro-intestinal symptoms of long duration. The operation was performed a year ago. It is difficult to explain the rare existence of these bands; and it is rather tempting to attribute them to pre-natal agencies.

Gastro-intestinal Symptoms Associated with "Transitional" Bands.

Ileo-pelvic band ("Lane's kink").—Doubt has often been expressed as to its pathological significance, but its association with gastric and duodenal ulcer and with gall-stones is of too frequent occurrence to be ignored. Sir W. Arbuthnot Lane holds the view that the result of such bands is a mechanical obstruction—a view shared by many others. That this may be so occasionally in the extremest examples (when the antimesenteric border of the terminal ileum is fixed to the pelvic brim, and the gut rotated on its long axis) cannot be denied; but that such a view explains ileal stasis in the majority of cases is improbable for several reasons. For instance:—

1. The acute kinking, distortion, matting, &c., of small intestine resulting from peritonitis, trauma, &c., rarely induces any obvious delay evident under X ray examination.

2. In cases where repeated warnings have culminated in acute small intestine obstruction necessitating urgent laparotomy previous X ray examinations have proved of little help. In one such case previous X ray examination revealed no definite stasis, when acute attacks of pain of the severest character, lasting for over 20 years after hysterectomy, culminated in acute strangulation of the lower ileum for which I operated. Indeed, this is a common experience, and many instances can doubtless be quoted.

3. Even in a partial mechanical obstruction the gut proximal to the obstructed point is hypertrophied, while beyond this point it is always collapsed. Careful routine examination has never revealed any such hypertrophy above, or collapse below, the lesion; indeed, the ileum below the "kink" is usually rather "ballooned."

4. Not only is the ileo-pelvic band associated with ileal stasis, but also with delay in the cæcum and ascending colon (as demonstrated by X rays) even when the appendix is healthy. In extreme cases the bismuth may remain in considerable quantity in the cæcum and ascending colon after the rest of the intestines are entirely clear. This cannot be explained by partial mechanical obstruction.

5. Congenital inversion of the cæcum.—This condition is not infrequently encountered, the cæcum (usually of the infantile type) lying external to the ascending colon. In the extremest examples part or nearly all of the ascending colon is involved in the inversion. In such cases the terminal ileum reaches the cæcum by becoming more or less retroperitoneal and passing behind the ascending colon. I have twice encountered this condition in the extreme form and both were instructive. In one case, F., aged 35, almost the whole ascending colon was inverted, the terminal ileum being firmly embedded behind the colon in its course to the cæcum. Previous X ray examination showed marked ileal stasis. In the other, M., aged 51, repeated attacks of partial obstruction led to laparotomy. Dr. A. C. Jordan had previously demonstrated by X rays the inversion of the cæcum, which was confirmed at operation as an extreme instance, closely resembling the preceding case. In his case the ileum, proximal to its retroperitoneal passage behind the colon, showed the marked hypertrophy and dilatation associated with chronic or intermittent obstruction. But in this case no ileal stasis whatever was demonstrated by X rays.

6. Some kinking of the bowel is a normal feature at the natural points of support (i.e., duodeno-jejunal flexure, hepatic and splenic flexures), and is not necessarily associated with any pathological delay, even if acute. It is most noticeable that at such points the supporting bands or ligaments are attached to the viscus itself, never to the mesentery.

Clinical study of Lane's kink seems to show: (*a*) that "ileal stasis" is not due to mechanical obstruction; (*b*) that mechanical ileal obstruction must be all but complete before it can be demonstrated with certainty by X rays.

I have long held and acted upon the belief that the pathological effect of this band (and the "controlling appendix") was twofold.

(1) In the upright position the terminal ileum leads down to the pelvis, and the mesentery can be definitely shown to be shortened in this position. The bowel thus induces a tension on the mesentery in this situation, and mechanically irritates the efferent sympathetic nerves distributed to the ileo-cæcal region, thus inhibiting their normal rhythmic and peristaltic contractions and accentuating the normal ileal delay. (Fig. 4.) Together with this inhibition there is also a concomitant spasm of the ileo-cæcal sphincter (Elliott). Such an efferent sympathetic stimulus will further inhibit the *ileo-cæcal nodal point of Keith* and thus derange the "pace-maker" for the ascending colon; thereby causing the associated delay at this segment already referred to, by a diminution of the rhythmic waves leading to delayed excitation of peristalsis. This is analogous to the inflammatory inhibition referred to in acute appendicitis. The possible criticism that such a stimulus will equally affect the vagus fibres does not hold for three reasons: (*a*) The difficulty experienced by physiologists in stimulating the vagus in its efferent course; (*b*) the increasing domination of the sympathetic, already referred to, as we pass down the intestine; and (*c*) such sympathetic domination was shown in this region by Dr. Parsons and myself so far as it affected the vaso-motor system.

FIG. 4.

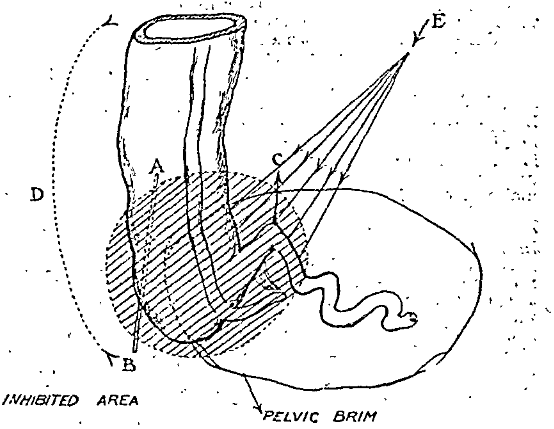


Diagram of efferent ileo-cæcal inhibition. A–B, Opening in peritoneum for cæcopexy. C, Pull on mesentery by Lane's kink. D, Area inhibited directly by secondary inhibition of ileo-cæcal nodal point. E, Lines of stress on efferent mesenteric sympathetic fibres.

(2) Such an inhibition of the ileo-cæcal angle may possibly be excited by the peristaltic wave itself. I once had the opportunity of watching an intussusception form in a loop of bowel in my hand, when operating on an infant for this condition under spinal anæsthesia. The extraordinary degree of ballooning of the inhibited segment preceding the contraction was a striking feature.

I have endeavoured to show that extreme distension will stretch the mesentery—is it not possible that, in the presence of such a "kink," on the arrival of a peristaltic wave at the area of the shortened mesentery, the widely inhibited segment may by its distension produce the drag on the sympathetic nerves that stimulates them to excite inhibition of the bowel? Even if such an inhibition is slight or partial it would tend to become progressive. Further, observations during operation have confirmed this inhibitory view. For I have noticed carefully that if the bowel be greatly drawn upon in the neighbourhood of a Lane's kink, so as to put it on the stretch, the terminal ileum becomes definitely ballooned, and the cæcum also gets distended.

If the efferent nerves are so stimulated mechanically the same effect will be observed in the afferent nerves. If it be granted that a summation of small "niggling" stimuli may in time achieve the same effect as one short violent one, the same result would be expected as in experimental or operative trauma to the lower ileal mesentery. Thus, not only should an efferent inhibition of bowel result, but also afferent stimuli exciting an efferent sympathetic response. This will result in pyloric spasm, gastric stasis, &c. (so-called "Appendix dyspepsia")—a sequel proved by X rays. Such a general, constantly repeated sympathetic reflex will not only so affect the pyloric sphincter, but will also produce a general partial intestinal inhibition; also inhibition (and so distension) of the gall-bladder, where innervation is similar to that of the intestine. The constipation, occasional pain on defæcation, and dyspeptic symptoms, associated with ileo-appendicular lesions, are fully explicable on such a view, while in their frequent association with gastric and duodenal ulcers, gall-stones, &c., such bands may at least constitute one of the many ætiological factors, primarily through constant direct and reflex intestinal inhibition.

The "controlling appendix."—I have always regarded such an appendix as one which, either by itself or through the medium of adhesions to the ileal mesentery, is capable of inducing a similar inhibitory stimulus. The mechanism of the Lane's kink and the "controlling appendix" may be thus regarded as one and the same —i.e., *inhibitory* to the normal "myenteric reflex" in the terminal ileum and the cæcum. It is clear that if the healthy human appendix still retains some of its pristine function as a "propelling organ," the controlling one not only loses such a function but actually interferes with the peristaltic and nodal mechanism of propulsion. There is thus a very simple explanation of the relief of constipation and dyspepsia in many cases where an appendix showing little disease has been removed—i.e., the release of a mutual mesenteric drag occurring during movements of the intestine.

Pelvic mesocolon.—The explanation of the pathological significance of these bands is entirely analogous to that of the ileo-colic. I have never been able to observe kinking sufficient to obstruct through their agency, and I cannot but regard their mechanism as purely inhibitory to the normal contractions of pelvic colon. Such a view will account for at least one aspect of dyschezia: for the initial act of defæcation, starting the movements of the colon, will result in tension on the pelvic mesocolon by the bands, and an inhibition of the completion of the act.

Jackson's membrane, chole duodeno-colic bands.—The mechanism of these I believe to be largely mechanical, since they are usually unattached to the mesentery proper.

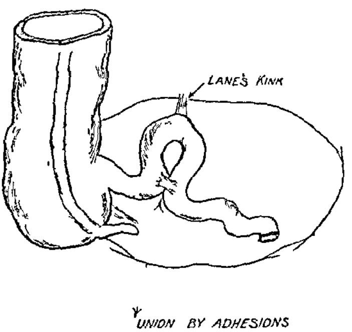
Surgical treatment.—In the treatment and after results lies such practical proof as I am able to adduce in support of these views. The simple division of such bands obviously invites a recurrence or worse. I have, therefore, for many years consistently practised free transverse division (until the bowel is quite free) with a suture of the raw surfaces longitudinally—i.e., a plastic lengthening of the mesentery of the simplest type. The numerous instances in which this has been done as a routine during the course of another operation could clearly afford little proof. I have therefore endeavoured to trace some of those cases where the routine removal of an apparently normal appendix cannot have been of influence and nothing further beyond a plastic lengthening of such bands was done. I have found 23 such cases where, so far as I could determine, there was nothing else abnormal in the abdomen. In 20 of these the terminal ileum was involved, and in 3 the pelvic mesocolon.

Ileo-pelvic cases.—The symptoms complained of were: flatulence, distension, and indigestion in 8 cases; "water brash" or "heart burn" in 2; biliousness and lassitude in 2. Pain was a prominent symptom in 10 cases; the pain was general or right-sided in 8, epigastric in 1, and in the left hypochondrium in 1. Constipation was a prominent feature in 9 cases. In one of them it is described as "markedly progressive" (this case was cured 5–6 years afterwards). It was absent in 6 cases. The results of this simple operation apply to periods of one to eight years afterwards. From 8 I have been unable to get any reply, though one of them had some flatulence three months after operation. Of the 12 cases who have replied to my inquiries, 10 describe themselves as an unqualified cure, one as a cure with occasional discomfort, one as much relieved. These figures, few as they are, represent at least 83 per cent. of cures from this simple procedure. In only one of these cases was the raw surface so large that an omental graft was used to cover it up.

In support of the benefit of this operation may be quoted one case from a different aspect—namely, that of a man aged 31, whom I operated upon for acute appendicitis in 1912. At the time of the appendicectomy a marked "Lane's kink" was noted, but was not released owing to sepsis. This patient writes me that he has no return of his acute symptoms, but suffers from indigestion, for which he has been treated.

There is one interesting anatomical feature in extreme cases—namely, that the two limbs of the tethered intestine occasionally become adherent to each other about 1½ inches from the kink, thus transforming a U into an O (Fig. 5). This condition I have encountered on at least two occasions. Even here there was no evidence of hypertrophy on the proximal or collapse on the distal side of the lesion.

FIG. 5.



Pelvic mesocolon.—The two cases which I have been able to trace 18 months and six years respectively after a plastic lengthening of the meso-sigmoid are of sufficient interest to justify a separate report of each.

(*a*) F., aged 21. A finely built well nourished, athletic girl, complaining of obstinate constipation, "indigestion, flatulence, and a feeling of great distension," for which she had received treatment. Some bands from the transverse mesocolon to the neighbourhood of the cystic duct were divided transversely and sutured longitudinally, but, though this may have influenced her flatulence, I did not think it could have exerted much influence on her constipation. There was no visceroptosis. The most marked feature was the aggravated form of the "sigmoid" bands. These were divided transversely and sutured longitudinally. An apparently normal appendix was removed. This girl is now "absolutely and entirely well" 18 months later.

(*b*) F., aged 17. This girl was sallow, thin, and unhealthy looking, and complained of obstinate constipation; the bowels were often not opened for ten days at a time. On exploration the cæcum was slightly pendulous but was not sutured. An apparently normal appendix was removed, and there was, so far as I could determine, no other abnormality in the abdomen except extraordinarily pronounced "sigmoid" bands. On dividing these transversely a large raw surface (about the size of the palm of the hand) was left, which extended well on to the lateral wall. I could not help being struck with the tension which must have been exerted by these bands, when their release left such a large gap that I could not close it by any plastic method. In this case I covered the raw surface with an omental graft. Before she was allowed up the bowels acted easily and regularly. The parents write to me she died "from other causes" last March, but that for the six years after her operation (until her death) the procedure had proved "entirely successful."

It can hardly be denied that in these cases the bands described were exerting pathological effects. Further, I am fully aware of the numerous factors entering into a surgical cure; but while bearing such possibilities in mind, I am unable to attribute the cure in the cases I have quoted to any other agency than the lengthening of the contracted mesentery. If I have succeeded in showing that their pathological effect on intestinal motor function is very rarely mechanical, it must be nervous or inhibitory in character. And again, if their harmful effects can be cured by so simple a procedure as plastic lengthening, does not this constitute indirect evidence that the mere traction exerted on the intestinal mesentery can stimulate intestinal inhibition?

Experimentally I have repeatedly tried to produce such stasis by kinking and distorting the mesentery in animals, but I never succeeded. Also it is curious that stasis associated with such bands is only to be observed from the lower ileum downwards. If the inhibitory view of stasis is accepted does not this support my conception of the increasing domination of the sympathetic, as opposed to the parasympathetic, as we pass down the intestine? Sir Arbuthnot Lane was the first to realise the predominant influence of the colon in visceral disorders, and to his genius must be attributed the stimulus to investigation in recent years. But this increased susceptibility of the terminal ileum and large intestine to mechanical nervous efferent inhibition constitutes, I believe, the main reason why these parts of the alimentary canal are so often the primary factor in the ætiology of gastro-intestinal disorders. A study of intestinal inhibition, however, is naturally not confined to its association with mesenteric bands. Having endeavoured to establish a principle I am anxious to enlarge my study by its application to visceral prolapse.

Disorders Associated with Inhibition of the Colon.

True visceroptosis, or Glenard's disease, is characterised by a prolapse of the viscera associated with a laxity of, and deficient support afforded by, the abdominal wall, including the pelvic floor. In extreme cases such a prolapse involves all the abdominal organs. The symptoms (often distressing) are familiar to all, but much of the obscurity in regard to their ætiology has arisen from the difficulty of discriminating between cause and effect, on the one hand, and from the erroneous impression that actual position in the abdomen can in itself influence intestinal function. That visceroptosis is frequently associated with profound stasis and its distressing sequelæ is common knowledge; but it is an everyday experience to find this condition pronounced in people who are in the most perfect health.

I believe the various degrees of prolapse to represent variations in a gradual transition from the type found in quadrupeds to the final position, in accommodation to the erect posture, altering food requirements, and so forth; and that the condition is in no way to be regarded as pathological. Subjects with a mobile colon, however, are definitely more liable to visceral disorders, and such anomalies should be regarded as a predisposing factor.

For a true appreciation of the pathological position of the various forms of prolapse there are two distinct factors to be realised: (*a*) Predisposing conditions; (*b*) true ætiology.

(*a*) *Predisposition* consists in the various degrees of congenital mobility and prolapse of the large bowel which invite a derangement of mechanism if a sufficiently powerful ætiological factor should supervene. In the absence of such an ætiological factor the condition is compatible, as we know, with perfect health; and I repeat there is no satisfactory evidence that prolapse of the stomach, transverse colon, or cæcum, &c., is in itself to be regarded as pathological. It is everyone's experience that this condition, even in exaggerated form, can be unaccompanied by any symptoms whatever. The most recent case under my observation is that of a girl of 25 years, perfectly healthy until after her first baby was born two years ago. Since then she has complained of pain, becoming gradually unbearable, in the right side after standing or walking for any length of time. X ray examination reveals an extreme degree of splanchnoptosis. But the point I wish to emphasise is that though there is a gastric stasis so extreme as to simulate partial obstruction (together with a marked increase of peristaltic waves over a prolonged period of at least nine hours) this patient has never had a symptom of constipation, dyspepsia, flatulence, or epigastric discomfort. Though the abdominal wall is apparently excellent and the pelvic organs are normal, it seems clear that, pronounced prolapse having been compatible with perfect health for 23 years, the ætiological factor in the onset of symptoms was the alteration of the abdominal wall and pelvic floor after childbirth.

(*b*) *Ætiological factors.*—Abdominal and pelvic support. In the case just quoted I have endeavoured to exemplify the view that visceroptosis is not per se pathological, but may become so on small provocation, which would be without influence in a subject with a well attached colon. That the abdominal wall and pelvic floor are important factors is certain. At least one of my cases on whom I performed cæcopexy some years ago remained perfectly well for a year, when symptoms gradually recurred after childbirth. This case is instructive and will be studied later. But the view that the abdominal wall can alone be responsible for the distressing train of symptoms associated with some extreme instances of prolapse cannot, I submit, be adequately supported by evidence, as I hope to show, though it certainly can initiate them. There are numbers of multiparæ, for instance, with marked visceroptosis and poor abdominal walls who have hardly a complaint; while, on the other side of the picture, we see numerous instances of unmarried girls with well-developed abdominal muscles complaining of severe and progressive symptoms.

Intestinal inhibition.—Numerous explanations have been given to account for the marked stasis often associated with prolapse. None of them are satisfactory. That the driving power of the colon is impaired is a postulate—how it is impaired is the problem. That mechanical obstruction occurs through kinking of the lumen is, I submit, quite an untenable hypothesis for many reasons:—

(1) Such a mechanical obstruction should produce hypertrophy on the proximal side. This is never seen; on the contrary, the bowel becomes very thin and ultimately inelastic. (This feature further negatives any possibility that the cause of stasis is primarily due to stretching of the intestinal muscle by bulk of contents, &c., for the normal intestine responds to increased work by hypertrophy.)

(2) The most marked kinks at hepatic and splenic flexures are often seen in those with a well-supported colon when there is no stasis at all. Some of the most acute flexures I have seen in a considerable number of personal observations under X rays, have been in people who had no stasis or constipation—and I have repeatedly verified this at operations. Recently such an extreme kinking at the splenic flexure was observed in a patient, in whom all the bismuth was evacuated within 24 hours. At a subsequent operation I found the X ray observations verified; and the two limbs of the splenic flexure were firmly united over a considerable distance, thus accentuating the kink.

(3) It is a most significant feature that, when the normal flexures of the alimentary canal are supported by ligamentous attachments, these are invariably attached to the bowel wall and never to the mesentery.

Such reasoning led me to the conviction that the normal support to the colon should be provided by attachment to the bowel itself, the object being clearly to leave the mesentery a free and mobile conductor of the vessels and nerves regulating the nutrition and movements. When the strain of support is taken by the mesentery, nerves (both efferent and afferent) are stimulated mechanically, the result being a derangement of the nervous impulses responsible for the normal intestinal contractions. If the bowel muscle is progressively prevented from contracting, then (and then only) will continuous stretching further impair its muscular action. Is it not reasonable to infer that active muscular inhibition may be the primary ætiological factor in many of these thin-walled, lax colons? The gradual domination of the sympathetic associated with an approach to the more primitive mechanism of peristalsis has been referred to in contrasting the mechanism of the colon with that of the small intestine. The ease with which sympathetic efferent effects can be evoked experimentally have also been emphasised. Once more, then, I am convinced that visceroptosis is innocuous until the strain of support is taken by the mesentery. Such increased traction initiates active inhibition, leading to overloading; while this again increases the mesenteric strain, accentuates the inhibitory impulses, and so the vicious circle is established. Thus a controlling appendix, Lane's kink, relaxation of normal abdominal support, constipation from any cause, may be the primary factor in overloading the bowel, increasing the mesenteric strain, and initiating the symptoms so often associated with visceroptosis.

In a word, the predisposing factor is visceroptosis, probably always congenital. The ætiological factor is intestinal inhibition, arising from: (*a*) deficient abdominal and pelvic support to a normal bowel; (*b*) any cause of overloading of the bowel when the abdominal wall is efficient; and (*c*) both (*a*) and (*b*) acting together. These factors start a progressive vicious circle.

The extent to which this conception is supported by the results of practical surgery forms the next part of my study, embodying a detailed analysis of 196 cases under my care during the last seven or eight years. This number represents that proportion in which I could obtain the data required for analysis. Of these 86·3 per cent. were females, and only 13·7 per cent. males. I have excluded children from this study, with the exception of three cases of unusual interest, aged 15, 10, and 8 years respectively.

Cases not Operated on.

A brief review of these is instructive for comparative purposes, and also to show that, even when not always apparent, the abdominal wall may be partly at fault. Apart from general hygienic measures palliative treatment has, in the main, been directed towards preventing overloading of the bowel, and providing adequate support of the abdominal wall by belts and corsets. Usually for the last eight or nine years I have had corsets made with the plate fixed internally, and adjusted, after the corsets are applied, by outside strap supports. This has proved the most satisfactory and comfortable, though considerable patience in repeated alterations is often necessary.

Of the 39 cases not operated on, 23·8 per cent. are cured; 57 per cent. are relieved, and in 19 per cent. treatment gave no improvement. To the failures must be added two more cases whose symptoms got worse rapidly. One has been recently operated upon, and the other awaits operation. In two cases the replies were too vague, and 16 did not reply at all.

One particularly interesting feature is the number of these patients suffering from frequency of micturition when nothing pathological in the urine was ascertained. In the whole series this symptom was present in 34·5 per cent., of whom 50 per cent. complained of frequency by day only. I have regarded it as due sometimes to congestion of a right kidney when dragged on by a mobile cæcum and ascending colon (Fig. 6); sometimes as due to the weight of a loaded transverse colon on the bladder. (I have been led to regard this symptom as possibly of importance in the prognosis of palliative treatment; for in this series six complained of it and only one was cured. Of those who ultimately came to operation this symptom was present in 23 cases, of whom a good proportion were cured.)

In 62·5 per cent. pain was a prominent feature (10 cases). Of these relief was afforded by treatment when the pain was in acute attacks or left-sided. No cases were cured who complained of dragging right-sided pain, though all were relieved to some extent by the treatment and corsets. The results from cases (50 per cent.) where constipation had been a prominent symptom did not differ appreciably from the results where constipation had not been a feature. Indigestion, flatulence, nausea, distension, &c., was complained of in 50 per cent. also; and of these 20 per cent. were cured and 66 per cent. relieved.

Though these figures are of limited value from the small number of cases traced, yet they support my previous impressions. For the small proportion cured and large proportion improved illustrates the fact that the abdominal wall, though an important factor, only plays an accessory part in the later cycle of events.

FIG. 6.

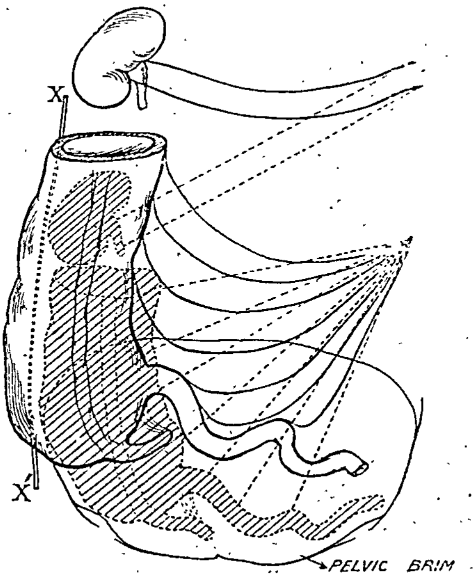


Diagram of efferent sympathetic inhibition to illustrate prolapse of the cæcum and ascending colon and resulting tension on nerve fibres. Continuous line, normal position with no tension on efferent nerves. Dotted line, prolapse associated with strain on mesenteric efferent sympathetic nerve fibres.

The other feature of interest is that the wearying dragging pain in the right side (so often erroneously attributed to mobile kidney, but really due primarily to a mobile cæcum and ascending colon) was not cured in any case, though it was improved in all. Not included in this series there is also a case in which nephropexy was performed at another hospital for this symptom with no relief. Complete cure was effected by the corsets, which are, however, indispensable. In another instance I performed nephropexy for acute renal crises with commencing intermittent hydronephrosis. This patient was completely cured of the acute renal symptoms, but for 18 months complained of a wearying dragging right-sided pain, for which I had to perform a colopexy.

A study of my cases shows that nephropexy is only justified as a measure directed against torsion of the renal pedicle (or excessive mobility,—which may make this possible), and never for descent of the kidney associated with right-sided dragging pain alone. In the latter class, if proper corsets fail to give relief, operation should be directed towards fixing a mobile cæcum and ascending colon, which is primarily responsible for the mobility of the kidney.

Finally, even if failure of the abdominal wall and pelvic floor only plays a limited part in starting a drag which leads to local or general intestinal inhibition, it is evident that if such a failure is corrected by corsets early, and the resulting inhibition eliminated before secondary factors are established, a definite cure may be achieved. This is shown by 23·8 per cent. of cures in cases not operated on; and further, by the cure of 18·7 per cent. in those who gave a history of constipation as a prominent symptom. At the same time most of the cases not operated on were of an earlier and milder type than those now to be considered.

(*To be concluded.*)

DONATIONS AND BEQUESTS.—By the will of the late Mr. Charles Adolph Heimann, of Sussex Gardens, Bayswater, W., the testator left £2000 to the University College Hospital, to endow two beds in memory of his late wife, Florence Emily Heimann; £1000 to the University College School, for general purposes; and £1000 each to the Hospital for Sick Children, Great Ormond-street, the Paddington Green Children's Hospital, St. Mary's Hospital, Paddington, to endow beds; Queen Charlotte's Lying-in Hospital, for general purposes; and Lord Mayor Treloar's Cripples' Home. He left also £500 to the Italian Hospital, London.

SOME OBSERVATIONS ON
THE INVESTIGATION AND TREATMENT OF NEPHRITIS

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WITHIN recent years various tests for the examination of patients suffering from kidney disease have been suggested, but in many cases the interpretation of these tests is still unsatisfactory, and it is quite certain that many of them are of little or no practical value. In considering the importance to be attached to any test, it is essential to have a clear understanding as to the particular defect of renal function present in the different forms of renal disease. In chronic nephritis there are two distinct conditions which stand out clearly and are exceedingly well defined by chemical investigation.

The Functions of the Kidney.

Normally, the kidney performs certain specific functions, which may be summarised as follows: (1) Removal of waste nitrogenous constituents of metabolism, such as urea, uric acid, creatinin, &c.; (2) removal of acid products from the body; (3) maintenance of the necessary concentration of salts in the fluids and tissues.

In chronic interstitial nephritis there is in severe cases a definite retention of nitrogenous waste products in the blood, and this condition is associated with a diminution in the acid excreting function of the kidney. In parenchymatous nephritis, on the other hand, there is no evidence of any retention of nitrogenous products or of failure to eliminate acid bodies, but there is often a definite failure to excrete the normal amount of salt.

In severe cases of acute disease all these phenomena may be present together, indicating a general interference with all the renal functions, but as convalescence progresses it often happens that there is a definite retention of nitrogenous waste products in some cases, while in others there is evidence of difficulty in the elimination of salt.

Defective excretion of nitrogen naturally causes an increased concentration of such bodies as urea and uric acid in the blood. Within comparatively wide limits it would appear that marked differences in the amount of these bodies in the blood does not interfere to any appreciable extent with ordinary cellular activity. On the other hand, it is most important to remember that any appreciable change in the concentration of sodium chloride in the blood is incompatible with life. It might therefore appear that any condition in which the kidneys failed to excrete sodium chloride would be one of the most serious of renal lesions, since it might tend to give rise to a fatal concentration of sodium chloride in the body. Normally, blood plasma and other body fluids contain, roughly, about 0·6 per cent. sodium chloride, and only slight variations from this figure are encountered even in patients who excrete practically no salt in the urine. When sodium chloride is retained it must be present in the body in definite concentration, and to accomplish this the body retains the necessary amount of water to yield this concentration. If much salt is retained a correspondingly large amount of water must be retained, with the result that œdema is produced. Generally speaking, each 0·6 g. sodium chloride retained requires 100 c.cm. of water. It is obvious that the same result will be produced whether the primary defect in the kidney is the elimination of salt or of water. If water is not eliminated its retention in the body tends to lower the salt concentration, and this is prevented by the retention of the necessary amount of salt to give the optimum concentration for the tissues. Salt can only be retained in the body when water is also retained and vice versa.

In parenchymatous nephritis the chief difficulty appears to be the excretion of the necessary amount of salt or of water. This results in the production of œdema, which is the most characteristic feature of the parenchymatous variety of renal disease. Strangely enough, the kidneys of such patients appear to be quite efficient in other directions, and so differ entirely from the kidneys of interstitial disease. Parenchymatous disease with marked œdema is always associated with the presence of a very large amount of protein in the urine, and consequently marked albuminuria and œdema are two of the most important symptoms in such cases.

In interstitial nephritis the picture is quite different. Here there is defective elimination of waste nitrogenous products and acid bodies, but no difficulty in dealing with salt. Hence, in typical cases, there is little or no tendency to œdema. The cardio-vascular system is involved. The urine often contains but a small amount of protein, and sometimes, even in bad cases, no protein at all can be found by the most delicate tests. Sometimes the symptoms of both parenchymatous and interstitial disease are present in the same patient, but more often very definite findings of one or other variety of the disease may be obtained.

While from clinical examination alone it may occasionally be difficult or impossible to differentiate these varieties, it is always possible to do so by chemical examination. A clear conception of the points involved is absolutely essential, for on this differentiation must be based any intelligent treatment of chronic nephritis.

The Difference between Interstitial and Parenchymatous Nephritis.

The chief points of difference between these two forms of renal disease are as follows:—

Interstitial Nephritis	*Parenchymatous Nephritis*
(1) Œdema absent	Œdema present
(2) Protein present in urine, but often slight or moderate in amount	Protein present often in very large amount
(3) Chlorides present in normal amount	Chlorides diminished or may be absent
(4) Urea concentration (urinary) decreased	Urea concentration normal
(5) Tendency to increase of urea and other nitrogenous products in the blood	No retention of nitrogenous products in the blood
(6) Cardio-vascular changes marked	Cardio-vascular changes less marked
(7) Tendency to uræmia	Uræmia less frequent

Parenchymatous nephritis.—In cases of uncomplicated parenchymatous disease, as already mentioned, the chief defect apparent on chemical examination is a difficulty in excreting salt. In certain cases sodium chloride may be entirely absent from the urine, while in others only traces may be present. It is by no means a simple process to ascertain the salt-excreting power of the kidneys, for the usual plan of giving 10 g. or more of sodium chloride by mouth and estimating the amount of this excreted in the urine is open to grave objections. Even in the normal individual a considerable amount of salt may be retained in the tissues, and it is only after repeated doses of salt given for several days that equilibrium is established and the kidneys excrete per day an amount equivalent to that taken in. In patients who are defective in the power of eliminating salt equilibrium is not established, with the result that marked and increasing œdema is produced. Even in hospital patients in the wards testing of the kidneys for salt excretion is a difficult and laborious process, while in patients seen only for a short time it is quite impossible. Practically, however, such tests are not required, for in patients in whom salt is retained to any appreciable extent the condition is obvious because of the resulting œdema. If no œdema is present it may be taken for granted that salt is not retained. In uncomplicated cases of parenchymatous disease the majority of the other tests used for estimation of kidney function give little or no information, since the results obtained are generally normal.

Interstitial nephritis.—The majority of cases of kidney disease belong not to the parenchymatous but to the interstitial type. Here careful investigation of kidney function is necessary, and most useful information is obtained by judicious examination. It may here be pointed out that the gravity of the case is in no way necessarily related to the amount of protein present, as is well known very severe cases may on some occasions show no albuminuria whatever, even when tested by the most delicate methods. Again, it has now been thoroughly established that albuminuria per se is not necessarily an indication of renal disease and may be present in individuals whose kidney function is apparently quite normal. In healthy soldiers who had just completed their training MacLean[1] found albumin in the morning urine in about 6 per cent. None of these men appeared to be suffering from defective kidney function. Further, it is possible for epithelial and hyaline casts to be present without any material or even appreciable kidney defect, so that in the absence of other symptoms the presence of albuminuria and even of casts, is not necessarily of much value in assessing the degree of renal inefficiency involved. No doubt in a general way, well marked albuminuria associated with large numbers of casts often indicates that the lesion is more or less considerable, but it is quite certain that in some cases this is not so. On the other hand, the presence of a mere trace of albumin, with few or many casts, may be associated with a very gross lesion. In spite of these qualifications the urine must in all cases be carefully examined for protein and casts.

Tests for Protein and Casts and Functional Tests.

By far the best and simplest test for protein is salicyl-sulphonic acid.

A suitable solution consists of 25 g. of the acid in 100 c.cm. water. A stronger solution may be used if desired. In testing a few drops of the solution are added to about ½ inch of urine in a test-tube. In the presence of much protein a dense white precipitate is obtained; if a small amount only is present a definite milkiness is produced, while in the presence of traces of protein a faint opalescence is obtained. The test is exceedingly delicate, and a urine in which no reaction takes place may be assumed with certainty to be protein free.

Casts should be looked for after centrifuging the urine. The only point to emphasise is the necessity for using as small a diaphragm as possible, for if this is neglected certain fine casts may be easily missed. The most suitable lens is an ordinary ⅔ objective with No. 3 or No. 4 eye-piece. A mechanical stage is useful if large numbers of specimens are to be examined.

After examining the urine for protein and casts, various tests may be employed for ascertaining the degree of involvement of the renal tissue. From an extensive experience of these tests we are of the opinion that the most useful for clinical purposes are the following: (1) Estimation of urea in the blood; (2) new "urea concentration test" (MacLean and de Wesselow[2]); (3) diastatic activity of urine.

Importance of Blood Urea.

The amount of urea in the blood of healthy individuals varies from about 15 to 40 mg. per 100 c.cm. An average figure in hospital patients with normal kidneys is, in our experience, from 20 to 30 mg. Anything over 40 may be taken as abnormally high.

When the kidney is unable to perform its normal work of excreting urea there is naturally an increase of urea in the blood. It is important to observe that even in very severe cases of nephritis the amount of urea excreted per day in the urine is the same as that of a normal individual on a similar diet, the difference between the two cases being that the patient with interstitial nephritis requires a much higher concentration of urea in the blood in order to accomplish this. If we look on the blood urea as a kind of pressure head we find that the healthy individual excretes his 25 or 30 g. of urea per diem with a head of, say, 25 mg. urea per 100 c.cm. blood, while the nephritic is only able to do this with a much larger head of blood urea; in bad cases this blood urea may be 200 to 300 mg. per 100 c.cm. blood, or even more. Thus, the concentration of blood urea is an excellent indication of the efficiency of the kidneys, for the worse the renal lesion the higher will be the blood urea. The kidneys comprise such a large mass of functionally active material that only from one-fourth to one-sixth of this is really necessary to carry out the body needs. It is, therefore, only in cases in which the kidney efficiency is reduced to one-fourth or less of its original value that there is any tendency for excess of urea to be retained in the blood. When this happens other substances, such as uric acid and creatinin, are also retained and accumulate in the blood. All these nitrogenous substances taken collectively are often referred to as constituting the "non-protein nitrogen" moiety of the blood. The amount of non-protein nitrogen present may, of course, be ascertained, and this is sometimes done in estimating kidney efficiency, but it is much easier to estimate the urea constituent alone. Since the urea concentration runs parallel in a general way with that of the other nitrogenous substances, this estimation gives all the information necessary.

From the above it will be seen that estimation of urea in the blood gives most valuable information, for when this ingredient is appreciably increased it is certain that the effective kidney tissue remaining is equivalent to less than one-fourth of the total kidney substance. In the great majority of cases of interstitial nephritis there is by no means such a marked involvement of kidney function, and therefore no evidence of increased blood urea. In bad acute cases estimation of blood urea gives invaluable information as to the course of the disease, for a progressive lesion is accompanied by a steadily increasing urea concentration, while a decreasing concentration indicates a good prognosis. In such cases it is advisable to examine the blood for urea at short intervals, for the blood urea constitutes a much safer guide than do the clinical symptoms; in fact, the latter may be quite deceptive, the condition of the patient appearing to be satisfactory in cases that terminate fatally within a week or ten days.

Estimation of Blood Urea.

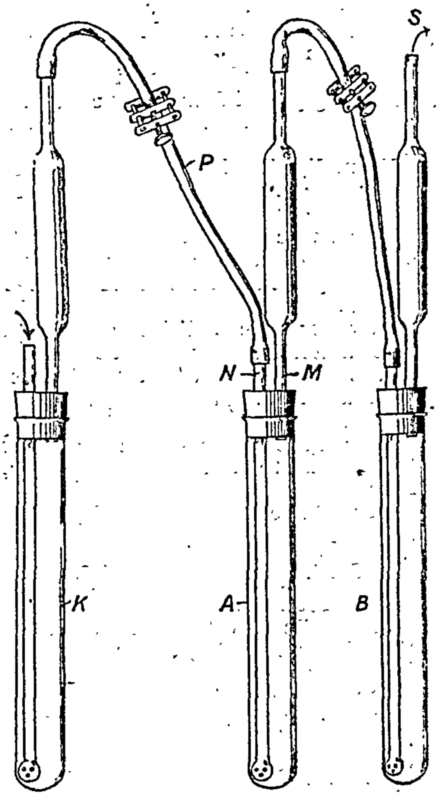
The estimation of the blood urea is carried out on the lines suggested by Marshall,[3] Van Slyke,[4] and many others. The modifications here described were suggested by MacLean and de Wesselow,[2] and have been found to work well.

The principle of the method depends on the fact that soya bean contains a specific enzyme (urease) which converts urea quantitatively into ammonium carbonate, but has no effect whatever on any other nitrogenous constituent. In the presence of alkali the ammonia is liberated from the ammonium carbonate, and by the help of a current of air is passed through a standard solution of acid. The amount of acid neutralised indicates the amount of ammonia present, and from this the urea can be calculated. Various preparations of urease, more or less pure, are now on the market, but they all suffer from the disadvantage that they are unstable, and therefore soon become unreliable. For clinical work it is far better to use finely ground soya bean meal; this can be prepared by passing the beans through a coffee machine, and it keeps indefinitely. For each experiment 0·3 g. of this meal is used, and since it contains traces of ammonia a small allowance has to be made. In various specimens 0·3 g. of the meal neutralised almost exactly 0·4 c.cm. N/100 sulphuric acid. This has to be subtracted from the total amount of acid neutralised in the actual experiment.

The estimation is carried out by means of tubes (K), fitted as shown in Fig. 1.

These tubes should be about 200 mm. deep and about 25 mm. wide. Each tube has a well-fitting rubber cork. Through this cork two small tubes pass. One of these (N, Fig. 1) has a small dilatation at the end, which is perforated with several small holes. This tube goes to the bottom of the larger tube (A). Through the other hole passes a tube (M) with a dilatation, which acts as a trap to prevent any fluid passing over. Two such large tubes are required for each estimation. To each of the small tubes passing through the rubber stopper is attached about 1 foot of ordinary stethoscope rubber tubing (P). For the accurate measurement of the blood it is best to have a special pipette made "to contain" 3 c.cm.

FIG. 1.—*Tubes for Estimation of Blood Urea.*



K, Contains 10 per cent. H_2SO_4. A, Contains blood. B, Contains 25 c.cm. N/100 acid. S, Leads to suction pump.

The materials required to carry out the estimation are as follows:—

(1) A solution containing 6 g. potassium hydrogen phosphate in 1000 c.cm. water. (2) Soya bean meal. (3) Caprylic alcohol (to prevent frothing). (4) N/100 H_2SO_4 and N/100 NaOH. (5) A saturated solution of methyl red in 50 per cent. alcohol (indicator). (6) Solid anhydrous potassium carbonate. (7) Saturated solution of potassium carbonate. (8) 2 × 25 c.cm. burettes accurately graduated in 1/10ths. (9) A pipette made to contain 3 c.cm. blood (made by Hawksley and Son, Oxford-street, W.). (10) A good water suction pump.

Method of obtaining blood.—About 10 c.cm. or less of blood are withdrawn from a vein at the bend of the elbow into a test-tube, coagulation being prevented by the use of a small amount of finely powdered potassium oxalate. The tube into which the blood is drawn must be inverted a few times to mix the solid oxalate thoroughly with the blood, otherwise coagulation may take place.

Details of Actual Estimation of Urea.

Two tubes, fitted as above described (see Fig. 1), are taken and adjusted so that the perforated inner tube (N) with the small bulb passes to the bottom of the outer tube. One of these tubes is used for the blood, while the other serves to contain the acid required for estimating the ammonia. The rubber corks and attachments are then removed and 5 c.cm. of acid sodium phosphate solution measured into the urea tube. By means of the special pipette 3 c.cm. of blood are added to the phosphate, the pipette being thoroughly washed out two or three times with the phosphate mixture so as to remove all traces of blood From 6 to 8 drops of caprylic alcohol are then added and finally 0 3 g soya bean meal The rubber stopper is now quickly replaced and the tube closed by means of clips on the rubber tubing The tube is placed in a bath at a temperature of 40 to 45° C and left there for 15 to 20 minutes During this time it should be occasionally shaken While the urease is acting on the blood urea 25 c cm of N/100 acid are added to the other tube (B) together with 1 drop of caprylic alcohol and 2 drops of methyl red solution

When hydrolysis of the urea is complete the tube is removed from the bath and connected with the tube containing the acid, so that air passing in through tube (N) will first pass through the blood and then through tube (M) to the acid in the large tube (B) To get rid of possible traces of ammonia in the atmosphere it is necessary to pass the air through a 10 per cent solution of sulphuric acid contained in tube (K) When the tubes are connected air is drawn through by means of the pump for two minutes or so By this means any ammonia present in the air in the blood tube is passed into the acid The blood tube is now opened and 4 c cm of saturated potassium carbonate solution followed by 3 g of solid anhydrous potassium carbonate added The stopper is quickly replaced and a current of air drawn through this should be slow at first but after a few minutes the pump may be turned on to its fullest capacity The time required for complete removal of the ammonia depends on the pump employed but with an ordinary pump the experiment should be complete in 30 minutes

The tube containing the standard acid is now disconnected and the acid transferred quantitatively to a small Erlenmeyer flask To do this the tube and perforated bulb must be washed two or three times with small quantities of distilled water The acid is then titrated with N/100 sodium hydroxide until the indicator gives a faint yellow colour The difference between the 25 c cm acid originally taken and the number of cubic centimetres of alkali used gives the number of cubic centimetres neutralised by the ammonia From this 0 4 c cm must be subtracted to allow for traces of ammonia generated from the soya bean

The calculation is very simple for when the above quantities are used each cubic centimetre of acid neutralised equals 10 mg urea

Estimation of Renal Efficiency in Cases showing no Increase in Blood Urea

From what has already been said it is obvious that estimation of blood urea gives information only in advanced cases of renal disease Even though fairly extensive degeneration of the kidneys may be present, it may not be sufficiently advanced to cause any increase in blood urea and this is the type of case most frequently met with in general practice Such are the cases in which it is perhaps most difficult to arrive at a satisfactory conclusion as to the real condition of the kidneys, and of all the tests used in this connexion we have found the new urea concentration test the most helpful This test in conjunction with the diastatic reaction gives most useful information

Urea concentration test—This test was introduced by MacLean and de Wesselow[2,5] about two years ago and has now been used in nearly 3000 cases It has none of the technical difficulties of the great majority of renal functional tests does not require the patient to be under observation for more than a very short time and can be carried out with the simplest apparatus The test depends on the fact that patients with defective kidneys are incapable of passing urine with a high concentration of urea even after a large dose of urea has been taken by mouth Further the degree of concentration of urea appears to be in direct relationship to the involvement of the kidneys In a normal person the urine passed one or two hours after a dose of 15 g urea should contain from 2 to 4 per cent urea In patients suffering from nephritis the urea percentage is often much less depending on the gravity of the condition If the urea percentage is below 2 the condition is unsatisfactory and the lower the percentage the more serious the lesion Cases with a concentration of urea lower than 1 per cent are comparatively rare but many moderately severe cases are unable to concentrate to more than about 1 4 to 1 5 per cent urea

Details of test—(1) The patient empties his bladder and immediately afterwards takes by mouth 15 g urea dissolved in 100 c cm of water The solution may be flavoured with a few drops of tincture of orange (2) One hour after taking urea he passes water This sample is kept and measured The urea percentage may be estimated in this specimen but as a general rule it is best to do this in the next specimen (3) Two hours after taking urea he again passes water This sample is measured and kept for urea estimation

The reason why the urea is calculated in the specimen passed two hours after taking the urea depends on the fact that urea may give rise to a certain amount of diuresis in patients who have been imbibing large amounts of fluid immediately before taking the dose This diuresis generally passes over in the first hour so that in general the specimen passed after two hours is always used for estimation of urea

Very occasionally it happens that a large amount of urine is passed during both the first and second hours in such cases a specimen passed after three hours should be examined If it is not convenient to detain the patient for three hours it may be taken for granted if no other signs of renal disease are present that the passage of very large amounts of urine giving a comparatively low urea concentration is dependent on diuresis and does not indicate kidney disease Not more than an average of 150 c cm urine should be passed per hour and in cases where 350 to 600 c cm or more are passed in the two hours of the test any tendency to a low urea concentration may be put down to the passage of excessive fluid In practice there is seldom any difficulty on this account but occasionally and especially when dealing with out patients in whom the intake of fluid cannot be regulated it is important to bear this possibility in mind So far the test has given excellent results, and in our opinion more useful information is to be obtained by this simple method than by any other functional test at present in use

Estimation of Urea

Urea is estimated by the ordinary hypobromite method

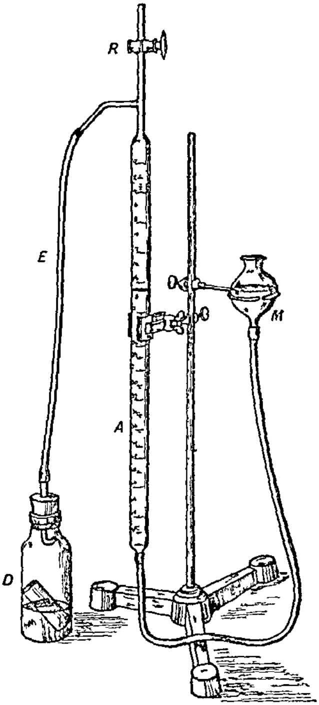
The apparatus used should give the volume of gas evolved A very suitable arrangement which is really a modification of Gerrard s apparatus is sketched here (Fig 2) This consists of an ordinary 50 c cm graduated burette (A) which has a glass tap (R) fixed at its upper end This burette is connected by rubber tubing (E) with a bottle (D) containing the urine and hypobromite solution This solution consists of about 23 c cm of 40 per cent sodium hydroxide solution to which 2 c cm of bromine are added The lower end of the burette is attached by rubber tubing to a small bell shaped vessel (M) to hold the water displaced by the evolved nitrogen

Before carrying out an experiment water is poured into the bulb (M) until it is about three-quarters full Care must be taken that no air bubbles remain in the rubber tube The water of course rises in the burette until it is at the same level as the water in the bulb

In estimating the percentage of urea 4 c cm of urine are measured into the small tube About 25 c cm of sodium hypobromite are put into bottle (D) and the test tube containing the urine placed inside the bottle so that the fluids do not mix Tap (R) is then opened and the rubber stopper placed tightly in bottle (D) Bulb (M) is then raised until the level of the water in the burette is at zero The level in the bulb will be naturally at the same level as that in the burette Keeping the level at zero the tap (R) is closed and the bulb replaced in its support The contents of the test-tube are now thoroughly mixed with the hypobromite the bottle being shaken for half a minute or so After another half minute the bulb (M) is moved so as to have the level of fluid in the burette adjusted to that in the bulb The number of cubic centimetres of gas is then read off and the urea percentage calculated on the basis of 8 c cm of nitrogen to 0 5 per cent of urea This equivalent has been worked out by estimating the average amount of urea obtained from various specimens of urine by the soya bean method and comparing these with the results obtained by hypobromite

FIG 2—*Apparatus for Urea Estimation*

(Modification of Gerrard s apparatus)



In conjunction with the urea concentration test we generally employ the diastatic test In general, when the urea test gives a low result, the amount of diastase in the urine is found to be low

Diastatic Test

This test depends on the presence of diastase (the ferment which changes starch into sugar) in the urine This diastase is obtained from the blood, which in turn gets it from the pancreas Normally, blood contains a definite amount of diastase, and when the kidneys are efficient a constant amount of this (6 to 30 units) is excreted daily in the urine In defective kidneys the amount is lower, depending on the degree of deficient renal action The diastatic activity of any specimen of urine is estimated in terms of the amount of starch which a definite volume of the urine will change in a given time, the disappearance of the starch being indicated by the failure of the mixture of starch and urine to give a blue colour with iodine. This test gives very good results when it is possible to get a sample of the 24 hours' urine, but is not nearly so accurate with single specimens of urine passed at different times of the day. A high diastatic value is in nearly every case an indication of efficient renal action.

Solutions Required and Method of Carrying Out Test.

For the test the following solutions are required: (1) A 0·1 per cent. solution "soluble" starch prepared by heating 0·1 g. soluble starch in a small amount of boiling water, cooling, and making up the total volume to 100 c.cm.; (2) 0·9 per cent. sodium chloride solution; (3) a solution of iodine about 1/10th normal.

In carrying out the test five test-tubes are taken and numbered from 1 to 5. The following amounts of urine and normal saline are then added to each tube, normal saline being used to make the total volume up to 1 c.cm. For adding the fluids 1 c.cm. pipettes graduated in 1/100ths are most suitable.

Tube No.	Urine c.cm.	Normal saline c.cm.	Tube No.	Urine c.cm.	Normal saline c.cm.
1	1·0	—	4	0·2	0·8
2	0·6	0·4	5	0·1	0·9
3	0·3	0·7			

When the tubes are ready 2 c.cm. starch solution are added to each. The mixture is then quickly shaken and the tubes put into an incubator or hot-water bath *at 37° C. for exactly 30 minutes.* The tubes are then removed and filled to within an inch of the top with cold water. This stops the ferment action. One drop of iodine is now added to each tube, beginning at No. 5. On shaking it will often be found that the last two tubes are still blue, but that No. 3 is colourless, or has only a faintly pink tint. If so, No. 3 tube contained just sufficient urine to change the 2 c.cm. of starch in half an hour. The empirical unit denoting the change is obtained by dividing 2 (the amount of starch in cubic centimetres taken) by the amount of urine in tube No. 3—i.e., $\frac{2}{0·3} = 6·6$. In the case of tubes containing fairly large amounts of urine it may be necessary to add more than one drop of iodine, since urine itself may take up some iodine. On this account the first drop of iodine may show no blue colour even when unchanged starch is present. On the addition of another drop, however, the blue colour will appear. Naturally, a greater number of tubes may be employed, but for practical purposes five are sufficient.

Other Tests.

Of the various other tests which have been recommended from time to time, perhaps the most widely used is phenolsulphonephthalein. No doubt this is a useful test, but to carry it out a colorimeter is required, and the matching of the colours is by no means easy. Sometimes attempts have been made to dispense with a colorimeter, but the error in direct estimations of the coloured solutions is so great as to render the method quite unsatisfactory. Again, the formula, suggested by Ambard and known as Ambard's coefficient, appears to be of little value except in cases where there is an increase in the blood urea; *it appears to* give no information beyond that which is obtained by estimation of blood urea. For general routine testing of kidney function we find the above combination of tests very suitable and capable of giving all the information we can hope to obtain in the present state of our knowledge of kidney function. Some results obtained from actual cases are given here.

Results of Examination in Some Nephritis Cases.

No.	Age in years.	Protein.	Casts.	Urea concentration test.	Diastatic test.	Œdema	Blood pressure.	Position of apex beat.	Condition of arteries.	Clinical condition.	Opinion as to kidney condition.
				%							
1	30	T.	E. +	1·2	3	–	185	N.L.	S. Th.	Good.	Badly damaged.
2	35	++	H.+	3·3	20	–	130	Int. N.L.	Good.	Fairly good.	Quite efficient.
3	41	++	H++ E. +	2·7	15	+*	135	„	„	Pale.	Par. Ne.; bad.
4	38	–	E++	0·9	1	–	160	Ext. N.L.	Th.	Fair.	Badly damaged.
5	44	+	H.+ Gr. +	3·9	20	–	220	„	„	Good.	Efficient. Card. vas.
6	45	T.	H.+ E. +	0·8	<1	–	210	N.L.	„	Poor.	Extremely bad.

T., Traces. +, Present in small quantity. ++, Present in large quantity. –, Absent.
E., Epithelial casts. H., Hyaline casts. Gr., Granular casts.
+*, Present in legs and abdomen. N.L., Nipple line. S., Slightly. Th., Thickened.
Par. Ne., Parenchymatous nephritis.
Card. vas., Cardio-vascular case.

General Clinical Examination of the Patient.

The main purpose of this paper is to discuss certain aspects of nephritis and not to attempt an examination of the whole subject; nothing does away with the necessity of a thorough clinical examination of the patient, in addition to any chemical investigations, in endeavouring to estimate the probable prognosis in a given case. The condition of the cardio-vascular, digestive, respiratory, and nervous systems manifestly demands careful attention. Obviously when renal disease is associated with marked arterial degeneration and high blood pressure the outlook is by no means good, even in cases in which the results of functional tests are more or less satisfactory. The frequency of death from cerebral hæmorrhage in such cases must not be lost sight of, for not infrequently the renal condition is secondary to the cardio-vascular changes.

Treatment.

Apart from the question of general treatment, the dieting of patients suffering from nephritis has always been perplexing and difficult. Recently, however, Epstein[6] suggested that patients suffering from marked œdema or ascites resulting from parenchymatous nephritis should receive a liberal protein diet. He claimed that this treatment resulted in a complete disappearance of the dropsy in many cases. This observation has been substantiated by many observers, and it is now generally admitted that an increase in protein diet is indicated in cases of parenchymatous disease in which dropsy plays a prominent part. In such cases the disappearance of the dropsy which often follows the change in diet is not accompanied by any definite beneficial change in the renal tissue. The amount of protein excreted in the urine is as large as ever, but the patient's general comfort is so greatly increased that he passes from a life of acute suffering to one of comparative ease. This disappearance of the dropsy which so often results from an increased protein intake has been explained by Epstein on the supposition that the lowered plasma protein content is increased, and that consequently a greater osmotic pressure is exerted in the circulatory system; this increased pressure attracts fluid from the tissues to the blood stream, and this fluid is in turn thrown out by the kidneys.

Even if we assume that an increased protein diet does really increase the plasma protein in such cases, it is difficult to understand why this should result in a disappearance of the œdema. On theoretical grounds, indeed, it might possibly be argued with equal force that the result would be an increase in the œdema. Estimation of the plasma protein, however, in several cases of parenchymatous nephritis did not indicate any increase as the result of protein feeding, yet in all these cases the dropsy disappeared. Since this disappearance was always associated with an increase in the blood urea it seems almost certain that the increased excretion of urine in such cases was due to the diuretic action of the urea in the blood.

Action of Urea in Removing Dropsy in Parenchymatous Nephritis.

The fact that increased concentration of urea in the blood accompanies the clearing up of the œdema suggested that possibly urea itself might act in the same way. To test this we have given large doses of urea to several patients with marked ascites and œdema, with the result that in each case the dropsy gradually disappeared. It is hoped to publish details later, and in this connexion it is only necessary to remark here that the treatment, to be successful, must be persevered with for several weeks or even longer if necessary. Thirty grammes or more of urea may be given per day. We generally give two doses of 15 g. dissolved in a little water every 24 hours. Soon the amount of urine passed increases greatly and may be double or treble the ordinary amount. In one case in which this treatment was tried the patient (a female) was absolutely water-logged, and it would be difficult to imagine a more intense œdema and ascites than she exhibited. After a month of urea treatment she began to improve and in three months was quite free from dropsy. She then left the hospital and stopped taking urea. In about a month she returned suffering from both œdema and ascites, which were almost as marked as at the beginning. After a fortnight on urea this cleared up entirely. She was watched for some time and the urea gradually cut off. She is now quite free from œdema and ascites, although she has had no urea for several months.

After-History of Parenchymatous Cases Cured of Dropsy.

Probably the most dangerous variety of chronic kidney disease is that of parenchymatous nephritis accompanied by well-marked œdema and ascites. The tissues become water-logged, and unless relief is obtained the heart and lungs become embarrassed, and the patient dies, we might almost say, from drowning. Although the treatment mentioned above may often succeed in removing the dropsy the renal condition is not influenced, and the proteinuria remains as marked as ever. Though the patient is not cured it is most important to relieve the dangerous dropsical condition, for in the rare cases that survive there seems to be a tendency to pass from the stage in which œdema is one of the most distressing symptoms to one in which the symptoms represent those of chronic interstitial nephritis. When this stage is reached the immediate danger to life is much less and the patient may live in comparative comfort for many years. It is thus most important to prevent the ill-effects of excessive water-logging of the tissues by all means in our power, for if we succeed in keeping the patient alive for some time and get rid of the œdema by appropriate treatment it is reasonable to expect that the condition will change, and the tendency to œdema with its immediate danger to life will in many cases gradually pass over.

The Question of Protein Diet in Interstitial Nephritis.

There does not seem to be any theoretical objection to giving protein or urea in large amounts to parenchymatous cases in which there is no retention of nitrogenous products in the blood. In interstitial cases where such retention tends to be more or less well marked, it is generally considered that protein, especially in the form of meat, is, on the whole, contra-indicated. There is, however, no proof whatever that protein acts detrimentally even in advanced interstitial nephritis, but, on general principles, it is probably best in the present state of our knowledge to limit the intake of protein in patients showing marked retention of nitrogenous products in the blood. This appears to be the general practice, and it is no doubt a good one. On the other hand, it seems quite certain that milder cases of interstitial nephritis are not benefited by very strict dietetic limitations. It is customary for many medical men to order a very strict régime very low in protein content in many cases in which the renal condition is by no means bad. At present many hundreds of men who contracted nephritis on military service, and who still show some albuminuria, are really suffering far more from the effect of low diet than from their renal disease. In the course of the last few months we have seen a large number of such cases in connexion with nephritis work being carried out for the Ministry of Pensions. As the result of very many observations we are convinced that, in general, patients suffering from interstitial nephritis of moderate severity should be allowed a fairly liberal diet in which protein need not necessarily be cut down to any great extent. In very severe cases it is probably best to depend chiefly on carbohydrate food. The whole question of the effect of protein diet in kidney disease still requires much investigation, but it is certain that the custom of feeding patients practically on slops for long periods does more harm than good.

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THE FACTOR OF FEVER IN THE DIAGNOSIS OF CANCER.[1]

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GENERALLY speaking, fever is uncommon as an accompaniment of cancer; its chief importance depends on the liability to forget it. If fever be forgotten, cancers may be diagnosed as inflammatory lesions, and inflammatory conditions secondary to cancers may have their cause overlooked. The practical problems which present themselves in connexion with fever in cancer are three: 1. If fever is present, is it caused by uncomplicated cancer? 2. If cancer is present and fever also, is the fever due to the cancer itself or to some inflammatory complication? 3. If an inflammatory lesion is present, causing fever, is cancer also present?

Some years ago it was taught that uncomplicated cancer is necessarily afebrile. Thus, so lately as 1895 a well-known writer on diseases of the stomach committed himself to the statement that "uncomplicated cancerous disease does not of itself produce fever." And this teaching, though not universal, has done much to create a general impression which persists. There is now, however, evidence that rapidly growing cancers, such as round-celled sarcomata and the softer varieties of carcinoma, in certain organs, can cause fever in the absence of an inflammatory complication. This seems to be the case in six situations at least—viz., in the liver, stomach, suprarenals, long bones, lungs with mediastinum, and breast. But precise evidence, so far as I can discover, is limited to cancer of the liver, the stomach, and the long bones. Evidently the subject needs closer attention than has yet been given to it. However, the following three statements seem to me to establish the fact that it occurs.

Sir Humphry Rolleston writes that amongst cancers of the liver cases occur accompanied by fever, as in some instances of primary malignant disease of the organ, in which no other cause for the fever than rapid cell-growth is forthcoming. Dr. Soltau Fenwick, speaking of the softer varieties of carcinoma associated with fever (primary growths, of course), says that in 8 per cent. of them the growth was not associated with any complications visible to the naked eye. My colleague, Mr. B. Dyball, tells me that he has had a case of sarcoma of the tibia in which the temperature was constantly between 100 and 101° F. in absence of any inflammatory complication.

I propose to call this fever of cancer uncomplicated by inflammatory lesion "growth fever," a name which only commits us to the assumption that the fever is produced by some process of the growth itself, apart from inflammation; and to term the fever caused by any inflammatory complication of a cancer "complication fever."

In what I have to say no reference will of course be made to such independent intercurrent febrile disorders as may attack cancer patients, just as they may attack anyone else—influenza, typhoid, &c. Nor shall I lay much stress on terminal fever, due to some final complication, preceding death by but a few days, although I shall allude to it where it may occur; such terminal temperatures do not help us much in the matter of timely diagnosis. I shall avoid reference to my own personal experience except in a very few instances, since opinion on this subject must be formed upon a wider basis.

What I have termed "growth fever" has hitherto been explained as "due to the rapid growth and multiplication of the cells," to "an extreme activity of cell growth." This may well be the cause. But there are other possibilities which have to be considered. The following suggestions have been put forward by some of my colleagues with whom I have discussed the subject. Mr. A. L. Candler points out that in a rapidly growing cancer the vitality of the new cells is low, and suggests that the fever may be due rather to absorption of dead material than to activity of growth. In support of this idea Mr. A. C. Roper recalls a case in which a mass of inoperable glands in the neck was submitted to the X rays, with the result that the temperature went up to 103°, a condition of fatal toxæmia being established, seemingly from excessive destruction of cancer cells. Mr. N. F. Lock makes a different suggestion, that, as in rapidly growing cancer hæmorrhage is common, the absorption of this blood may account for the fever.

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[1] A paper read at a meeting of the Devon and Exeter Medico-Chirurgical Society, April 22nd, 1920.

Classification of the Conjunction of Fever and Cancer.

I will classify cancers according to the type of fever occasionally found in conjunction therewith:—

A. *Either growth fever or complication fever.*—Liver,* stomach,* suprarenals,* lung with mediastinum, long bones, breast (rarely).

B. *Complication fever only.*—Gall-bladder,* bile-ducts,* large intestine,* small intestine,* appendix,* uterus,* fallopian tubes,* ear,* glands in neck,* tongue, lip, œsophagus, pancreas, peritoneum, rectum, eye, larynx, thyroid.

* Commonly.

C. *Neither form of fever.*—Kidney, ovary, vulva, testis, penis, urethra, parotid, jaw, brain, spine, skin, muscles, heart and pericardium.

Group A.—Cancers accompanied by either "Growth Fever" or "Complication Fever."

Liver.—"Growth fever" is said to be more common in cancer of the liver than in cancer of any other organ. At all events it is not uncommon in primary carcinoma and sarcoma, especially in the rapidly fatal sarcomata of young persons. The temperature generally reaches 101°, and seldom exceeds 102°. It may continue for weeks. The diagnosis of such cancers from abscesses, says Rolleston, may only be possible on exploration, especially in children and young adults. The difficulty is increased by the occasional breaking down of the tumour with the formation of cysts. In quickly-growing secondary sarcomata and carcinomata of the liver "growth fever" may also occur; but here the presence of a primary cancer elsewhere, with perhaps an open ulcer, renders the source of the fever uncertain.

"Complication fever" may be caused by the following complications of hepatic cancer: abscess (single or multiple), suppurative cholangitis, suppurative pylephlebitis (very rare), empyema (rare), ulcerative endocarditis (very rare). So when we diagnose the presence of one of these lesions, though cancer may not be obvious, we have to remember that either a hepatic cancer, or some other cancer to which a hepatic cancer may be secondary, may be the cause thereof.

It is necessary also to recall in our diagnosis the other febrile hepatic diseases, besides those just enumerated, which must be diagnosed from febrile cancer; and to remember that many diseases of the liver may be associated with fever. Syphilis with gummata may, in the liver, set up a temperature just as cancer may do. Portal cirrhosis is occasionally febrile in its earlier stages, especially in young patients, apart from its febrile complications. The temperature may range from 100 to 102·5°. Biliary cirrhosis (less likely to cause difficulty, from the earlier age and the history) is generally accompanied only by febrile exacerbations with abdominal pains and temporary increase of jaundice. Gall-stones may cause either "intermittent hepatic fever" or the more continuous high temperature of their complications. Abscess, and acute hepatitis short of abscess, may cause a high and swinging temperature with rigors. Lymphadenomatous enlargement of the liver may be associated with the peculiar oscillating and undulatory fever of certain cases of that disease. Lastly, infective jaundice, actinomycosis, suppuration hydatid disease, and massive tubercle have to be borne in mind.

Stomach.—"Growth fever" appears to occur in a certain number of cases of cancer of the stomach, seemingly most often in sarcomata, especially in young persons, and in the softer varieties of carcinoma which are often met with on the walls of the organ as distinguished from the orifices. This fever may be present throughout the whole course of a round-cell sarcoma. It is usually continuous and ranges from 99 to 102°. Taking both sorts of fever together, Fenwick finds that a third of all cases of gastric cancer have fever at some part of their course, and he points out that sometimes this fever is so prolonged and severe as to cause serious mistakes in diagnosis; of the cases which have fever about half have it constantly. Osler and McCrae found fever in half their cases, and constant fever in a fifth of this half.

When even occasional fever is present throughout the course of a gastric cancer, chills are common, in which the temperature may rise as high as 102 or 103° and remain up for two or three days. When the fever is continuous the temperature is generally, Fenwick says, between 99 and 100° in the morning and between 100 and 101° in the evening. Occasionally the morning temperature is subnormal, so that the chart resembles that of suppuration. Either of these types may last for months. Towards the end the fever is apt to cease. In rare cases the fever is constantly over 100° and shiverings and sweatings accompany it.

The complications of gastric cancer capable of causing fever are: general peritonitis from perforation, in about 3 per cent. of the cases; local peritonitis, also in about 3 per cent., producing subdiaphragmatic abscess, generally below the left wing of the diaphragm, abscess between the stomach and the anterior abdominal wall, or some small pocket of pus elsewhere; abscess of the liver, spleen, or kidney from direct invasion of one of those organs—these are rare, especially the last; suppurative pylephlebitis is very rare.

It is noteworthy that, apart from perforation of a gastric ulcer and the very rare cases of phlegmonous gastritis, gastric diseases are not attended by fever. Hence considerable fever in connexion with gastric disease, but in absence of evident complications, may suggest the presence of some form of rapidly growing cancer.

Suprarenals.—Cancer of the adrenals seems to be very commonly associated with considerable irregular fever, and Dock goes so far as to state that this occurs in half the cases. Such fever appears to be "growth fever," for I can find no statement that inflammatory complications in any case account for it. It is worth calling to mind that acute adrenal hæmorrhage is a markedly febrile disease.

Lungs and mediastinum.—"Growth fever" seems to account for some of the febrile cases reported, since a single large lung tumour may produce fever apparently without inflammatory complications. I remember seeing many years ago, with Dr. Alfred Perkins, an old postman suffering from what resembled acute rheumatic fever, with considerable temperature, sweating, and a rapid very feeble heart. On autopsy a primary cancer of the lung was found on the left side, beginning in the root of the lung and extending upwards and backwards to reach the pleura under the supraspinous fossa; no inflammatory complication was discovered.

All authors describe a rare and remarkable form of pulmonary cancer which runs an acute course of something under three months, with rigors, fever, sweatings, and rapid emaciation, the temperature reaching 102 or 103°. Such cancers have been mistaken by good observers for caseous pneumonia. The presence of moderate and irregular fever in a pulmonary case, coupled with the pressure symptoms which pulmonary tumours exert, has been held to point towards cancer. More often probably fever in lung cancer is due to complications. These are empyema, abscesses in the lung from blockage of bronchi, cavities, associated broncho-pneumonia.

The same remarks apply to cancer of the mediastinum, often not easily distinguished clinically from pulmonary cancer, where, according to Sir R. Douglas Powell and P. Horton-Smith Hartley, pyrexia of a low irregular type is often present; but in such cases the growth is rarely found at autopsy to be uncomplicated, "broncho-pneumonia" or a slowly disintegrating form of septic broncho-pneumonia being most often discovered. W. H. Walshe met with complicating empyema on the side most affected at least six times. In lung and mediastinum the curious paradox arises that where the diagnosis lies between cancer and an acute or subacute inflammatory consolidation or effusion, in which fever is practically invariable, absence of fever would suggest growth; whilst in cases where the question lies between cancer and a very chronic condition, like some chronic pneumonias, in which fever is generally absent, fever would suggest cancer.

Long bones.—Sir H. Butlin and Dr. Colby in 10 cases of various kinds of sarcoma of the femur found constant fever in 5, habitually 100° in most of them, and 102° in one case up to the time of amputation. So far as one can discover from the meagre details, these cases appear to have been uncomplicated. These authors note the difficulty in diagnosis caused by the rise of temperature, but do not definitely state whether inflammatory complications did or did not exist. Mr. Dyball, as mentioned above, has seen a case of sarcoma of the tibia in which the temperature was constantly between 100 and 101°, with no inflammatory complications.

Breast.—"Growth fever" is definitely stated to occur in rare and rapid cases of primary breast sarcoma. And by inference it seems likely that such cases of rapid sarcoma and carcinoma as "simulate abscess" are febrile; but I cannot find this stated. "Complication fever," one imagines (again it is not stated), would accompany the abscesses which rarely form in connexion with breast cancer.

Group B —Cancers accompanied by "Complication Fever" Only

Uterus —Pyometria may occur in either cancer of the body or cancer of the cervix When pain has come on and the uterus is fixed, W J Sinclair finds fever at night (100° or a little higher) constant, and attributes it to parametritis or septic absorption Later on, he says, occasional fever may be higher still Pelvic peritonitis, pyosalpinx, and abscess of the ovary are all rare events

Fallopian tubes —Pyosalpinx seems common in this very rare disease

Tongue —Butlin stated that tongue cancers "set up suppuration round them and in the neighbouring glands"

Larynx —P Watson Williams and Sir Felix Semon tell us that 'secondary perichondritis which may proceed to suppuration and exfoliation of cartilages, not infrequently complicates the disease and may quite obscure its objective symptoms"

Thyroid —Remittent fever is not uncommon in the later stages according to G Dock, but he makes no mention of suppurative complications

Œsophagus —Periœsophageal abscess may be set up, or empyema, or pulmonary gangrene All are unusual It may be of interest to mention a case of pulmonary gangrene caused by an œsophageal perforation from cancer, where my colleague, Dr R V Solly, found in the fluid an organism at least closely resembling the Oppler Boas bacillus

Small intestine —Duodenal cancer when it involves the biliary papilla, typically ends, Rolleston tells us, in cholangitis Cancer of the jejunum or ileum may cause fever and tumour so as closely to simulate appendicitis

Appendix —Cancer of the appendix causes an attack just like appendicitis, and the nature of the case is only discovered after operation My colleague, Dr Ransom Pickard, gives me a good instance of this

Colon —The complication to be expected here, causing fever, is peritonitis, general or local General peritonitis is common Abscess is not uncommon, and may arise without perforation Cancer of the cæcum may thus simulate appendicitis My friend, Mr Russell Coombe, considers that a moderate temperature is a very common accompaniment of these growths, especially of cancer of the sigmoid

Rectum —Local abscess or general peritonitis may occur

Peritoneum —Extensions of the cancerous implantation appear to cause temporary rises of temperature

Gall bladder —Here empyema of the gall bladder, suppurative cholangitis, suppurative pancreatitis, local peritoneal abscess general peritonitis, and ulcerative endocarditis have all been recorded

Bile ducts —Suppurative cholangitis with or without miliary hepatic abscesses, is common, and ulcerative endocarditis may arise

Ear —The greatest difficulty in diagnosis may be caused by suppuration, which in these growths is scarcely ever absent

Eye —Intra ocular suppuration may be a sequel of intra ocular growth Meningitis may also occur

Pancreas —It is curious that so little reference can be found to fever in connexion with cancer of the pancreas But Mr Dyball tells me he has met with a case in which fever was caused by suppurative cholangitis secondary to carcinoma of the head of the gland

Prostate —It would be interesting to know if "growth fever" accompanies the rapid sarcomata of this organ Fever begins in ordinary cases of cancer when cystitis is set up

Bladder —Mr Dyball tells me that fever begins with cystitis

Glands in the neck —My colleague, Mr Roper, calls my attention to the frequency with which suppuration is associated with large secondary glands in the neck

Group C —Afebrile Cancers

It is not improbable that once sufficient attention has been given to the occurrence of fever in cancer and to its importance in diagnosis some of the cancers which I am now going to enumerate may be found occasionally to cause fever From the accounts, however, to which I have been able to gain access neither "growth fever" nor "complication fever" occur in them A few present, it is true, a terminal fever, such as a final brief septic pneumonia in parotid cancer, but such fever has little value from a general diagnostic standpoint

Kidney —I have never seen fever in kidney cancer, and can find no account of its occurrence The fact is curious in view of the rapid growth of renal sarcomata in children Surely, at least in those cases where pyonephrosis arises from obstruction by the growth, some fever may be present If not, a tumour in the renal region associated with fever should presumably be suprarenal But if so, what happens in cases of renal hypernephroma?

Urethra —One wonders whether periurethral abscess ever occurs The growth is excessively rare I have seen one case which was cut into on the supposition that it was an abscess, but I do not remember any fever

Ovary —Here growth may be rapid, and one wonders if "growth fever" occurs

Jaw and parotid —Both growths may exhibit a terminal fever from septic broncho pneumonia Otherwise, I can find no reference to fever

Other growths —Of the other growths in the list given above I have nothing to say, except that I can find no record of their producing fever

Conclusion

I am very sensible of the shortcomings of this paper. They seem inseparable from a subject to which too little general attention has been attracted If my remarks succeed in arousing more interest in what appears an important factor in cancer diagnosis, and especially in that form of fever which I have called "growth fever," my object will have been attained.

CEREBRAL REACTIONS FOLLOWING INJECTIONS OF NOVARSENOBENZOL

WITH A RECORD OF TWO FATAL CASES.

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THERE has been much discussion as to the cause of the severe cerebral reactions, usually ending fatally, which from time to time occur during the treatment of syphilis with arsenical preparations of the salvarsan and neosalvarsan type, and up to the present no general agreement on the subject has been reached It seems, therefore, important to publish any cases in which the symptoms or pathological findings may be helpful.

The two cases here recorded may be regarded as typical Both patients were well developed young adults, apparently healthy except for their specific infection, and presented neither in their past history nor present physical condition any of the recognised contra indications to arsenical treatment, both developed the usual symptoms of epileptiform convulsions and coma, and both terminated fatally

CASE 1 —This patient, aged 29, was admitted to the Royal Naval Hospital, Chatham, Dec 18th, 1919 with a primary sore situated within the left nostril, a papular and roseolar rash, and generalised enlargement of the lymphatic glands of the body *S Pallida* was demonstrated in abundance in the intranasal sore by dark ground illumination and the Wassermann reaction in the serum was positive On Dec 22nd 0 45 g novarsenobillon was given by intravenous injection of concentrated solution No reaction followed On Dec 29th a second injection of 0 6 g was given A slight "endotoxic" reaction followed indicated by a rise of temperature to 101 2°F the same evening, falling to normal level next morning The unusually long interval of seven days between the injections is due to the Christmas holidays On Dec 31st, in the morning, the patient's temperature was 99°, but normal in the evening He complained of slight headache and appeared nervous and apprehensive as to his condition but on examination no cause for alarm was found During the night, however, the signs of severe cerebral reaction developed, the patient became completely unconscious, the teeth were tightly clenched, and the jaws could only be opened with difficulty Almost continuous convulsive movements of the limbs and facial muscles, suggestive of extensive cortical irritation were present, and continued until a few hours before death Incontinence of urine occurred The pulse was rapid, 140 to 150 per minute, equal, regular, and not of high tension The temperature at first normal, rose to 103 4° before death, but hyperpyrexia was not observed as in the case following Urine withdrawn from the bladder by catheter about 12 hours after the onset of the symptoms was found to contain albumin and blood The respirations were at first frequent, 40 to 50 per minute, deep and stertorous, but later on, as the respiratory centre was becoming exhausted, became gradually slower, shallower, and weaker, and at times the breathing took on a Cheyne-Stokes character A moderate degree of cyanosis was present, temporarily relieved by inhalations of oxygen The patient died at 12 25 P M on Jan 2nd without regaining consciousness, death being apparently due to failure of the respiratory centre

CASE 2.—A Jew, aged 22, was admitted on Dec. 4th, 1919, with a healed chancre at the base of the penis, a well-defined macular secondary rash, ulceration of left tonsil, and general glandular enlargement. The Wassermann reaction in the serum was positive (Dec. 6th). No contra-indications to arsenical treatment were discovered, and treatment with intravenous injections of novarsenobillon in concentrated solution was commenced. Three doses, beginning with 0·45 g., were given, and were followed by no reactions. A fourth dose (0·6 g.) was administered on Dec. 15th, and 48 hours later the cerebral symptoms appeared. The patient at first complained of slight headache and sore-throat, his temperature being 99·2° F. About ten minutes after being seen the patient suddenly became unconscious and fell into an epileptiform seizure, followed by convulsive movements of the limbs as in the first case, and these continued until a few hours before death. Incontinence of urine occurred. The pupils were equal and contracted; the corneal reflex was not lost until shortly before death. The pulse was rapid, 140 to 150 per minute, but of good volume and moderate tension. Respirations were rapid, deep, and stertorous, but later, as the respiratory centre became exhausted, shallow, feeble, and irregular. Cheyne-Stokes breathing was not observed in this case. A moderate degree of cyanosis was present. The temperature commenced to rise shortly after the onset of symptoms and hyperpyrexia supervened, the axillary temperature rising to 107·4° four hours after the onset of symptoms. Death occurred 11 hours after the onset of the reaction and was apparently due to failure of the respiratory centre.

Treatment.

The treatment of these cases was on orthodox lines and was apparently quite useless. In the first case lumbar puncture was performed and about 25 c.cm. of clear fluid not under abnormal tension were withdrawn. Adrenalin, 1 c.cm., was given hypodermically at the outset, and was repeated later with no apparent benefit. Normal saline solution was injected intravenously, also saline and brandy per rectum. When the cyanosis became marked inhalations of oxygen were given, and, in view of the conclusions drawn later, it is regretted that its continuous administration was not adopted. In the second case, in addition to these measures, 20 ounces of blood were withdrawn from the median basilic vein, and cold sponging and an ice-cap were applied in order to combat the hyperpyrexia. In this case, also, no benefit whatever resulted from the injection of the adrenalin, although it was given freely. The advisability of giving this drug in these epileptiform conditions may be called in question by the experience of Benedek,[1] who gave injections of 1–1·5 c.cm. of suprarenal extract to 19 epileptics, and found that seven of these developed a typical seizure from a half to one and a half hours after the injection.

Autopsies.

At the post-mortem examination in each case the most striking naked-eye pathological change was extreme congestion of the lungs, the condition being most marked at the bases. The lower lobes appeared heavy, dark, and deeply engorged with blood; in places they were airless, and on section dripped blood-stained serum.

In Case 2 no other pathological condition was apparent to the naked eye. There was no abnormal meningeal congestion, and no disseminated punctate hæmorrhages, as described by various observers, were visible in the brain substance. The liver, kidneys, spleen, and other viscera presented a natural appearance.

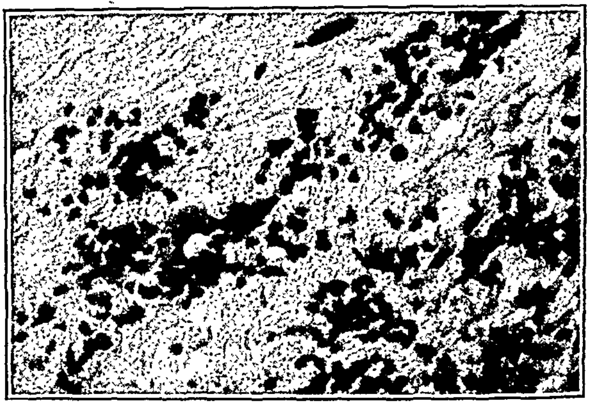
In Case 1 changes were also observed in the brain and liver, that in the latter organ being probably of post-mortem origin, and consisting of irregular yellowish patches scattered over both lobes and extending about 0·5 cm. below the surface. The meninges appeared healthy, but over the cortex of the cerebrum, especially of the temporal and occipital lobes, the smaller vessels of the pia arachnoid appeared slightly congested. On section the brain appeared normal to the naked eye, with the exception of the optic thalami, especially the right, in which there seemed to be some extravasation of blood from the smaller vessels. The choroidal plexuses were not engorged, and the ventricles contained no excess of fluid. The kidneys presented no appearance of congestion or inflammation, in striking contrast to the pictures seen in the microscopic sections. No pathological changes were noted in the other viscera.

A complete investigation as to the presence of arsenic in the various organs was not carried out, and in view of the rapid elimination of novarsenobenzol, little or no information would be gained thereby. Marsh's test was performed for the presence of arsenic in the brain of the first case, but a negative result was obtained.

Microscopic sections were made of the lungs, kidneys, optic thalamus, and liver of the first case.

Lungs: Sections were made through the deeply congested portions, and stained with hæmatoxylin and eosin and by Heidenhain's iron-hæmatoxylin method. They presented a striking appearance, characterised by interalveolar, and especially interstitial, bleeding from the capillary vessels. Some proliferation of the cells of the epithelial lining of the alveoli, with shedding of the so-called "catarrhal" cells, was also shown. The smaller bronchioles were filled with red blood cells. The most striking feature was the pronounced interalveolar bleeding.

Optic thalamus: Sections were cut through the hæmorrhagic area, and similarly showed extensive capillary hæmorrhage, the blood from the ruptured capillaries lying between the nerve fibres and cells.



Section of optic thalamus stained with iron-hæmatoxylin, showing extravasation of blood between nerve fibres.

Kidneys: In these organs, also, capillary bleeding was the outstanding feature of the sections. The selective action of the toxin causing the condition was well shown, for while the glomerular tufts presented a normal appearance, there was widespread extravasation of blood into, and especially between the tubules from the capillaries of the tubular portion of the organ.

Liver: Sections were made through the areas of discoloration observed at the post-mortem examination. Here, also, capillary hæmorrhages were present, although the bleeding was not so widespread as in the other organs examined.

The feature common to all these sections is therefore the extravasation of blood from injured and ruptured capillaries, the interalveolar bleeding in the lungs being especially remarkable.

On the Causation of Symptoms.

Several hypotheses have been advanced to account for the production of the condition under consideration, and at present that of G. Milian, attributing the symptoms to the vaso-dilator effects of the arsenical preparation acting in a patient with diminished suprarenal activity, is the one most widely accepted. The treatment of the cases by adrenalin given in various ways has been recommended by many authorities. The condition is known by the supporters of this theory as "serous apoplexy." An interesting résumé of the subject is given in *Medical Science* for January, 1920, where some interesting cases are quoted in support of and against Milian's explanation.

Surgeon Lieutenant Commander R. J. G. Parnell,[2] R.N., has recently recorded an interesting case which recovered after the intravenous injection of urotropine and the continuous administration of oxygen, and Surgeon Commander Sheldon F. Dudley, R.N., in a note appended to his paper, advances the opinion that these cases are probably accompanied by anoxæmia, possibly of the type described by Professor J. S. Haldane[3] as due to the alteration of the dissociation curve of oxyhæmoglobin, so that it gives off oxygen less readily in the tissues.

The post-mortem appearances in the two cases here described appear strongly to support Surgeon Commander Dudley's contention, but I would rather refer the production of the anoxæmia not so much to the alteration of the dissociation curve of oxyhæmoglobin but to another condition stated by Professor Haldane[4] to be a factor in causing anoxæmia—that is, defective saturation of the arterial blood with oxygen, owing to swelling, exudation, or other abnormality in or around the alveolar walls, preventing the diffusion of oxygen inwards quickly enough to saturate the blood in the limited time during which it passes through the alveolar capillaries.

The swelling or shedding of the lining cells of the alveoli and the widespread interalveolar and interstitial hæmorrhage seem quite sufficient to bring this about, and the capillary bleeding in the brain and other organs would further prevent the tissues from obtaining their requisite amount of oxygen from the already anoxæmic blood. The same process taking place in the kidneys, acting in the same way, would be a sufficient cause of the anuria or albuminuria described in many cases and attributed to the direct toxic action of the arsenic. The forced breathing, rapid, deep, and stertorous, which occurs in these patients would also tend to increase the degree of anoxæmia.[5]

Conclusion.

The conclusion arrived at is that the widespread capillary hæmorrhages, demonstrated by microscopic sections, afford a clear anatomical basis for the hypothesis put forward by Surgeon Commander Dudley that the symptoms are due to anoxæmia, that this anoxæmic condition is mainly produced by interalveolar hæmorrhage into the lungs, and to a less extent by interstitial capillary bleeding into other organs, and that the *continuous* administration of oxygen as carried out by Surgeon Lieutenant Commander Parnell offers the best hope of recovery in these unfortunate cases.

These appearances would also seem to explain in part the rapid development of the symptoms and the comparatively slow recovery, as instanced by Surgeon Lieutenant Commander Parnell's case, resulting from the continuous administration of oxygen.

I wish to express my thanks to Surgeon Commander E. L. Atkinson for his kind assistance, especially in preparing the accompanying photomicrograph.

References.—1. Wien klin. Wchnschr., 1918, xxxi., 1365. 2. THE LANCET, Jan. 24th, 1920. 3. Brit. Med. Jour., July 19th, 1919. 4. Loc. cit. and Brit. Med. Jour., Jan. 31st, 1920, p. 151. 5. Loc. cit.

TRAUMATIC RUPTURE OF THE HEART

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TRAUMATIC rupture of the heart is generally due either to gunshot or to stab wounds. These being commonly received in front, one or other of the right chambers of the heart is the usual site of the rupture. Such ruptures, where not immediately fatal, offer a prognosis distinctly better than do spontaneous ruptures. The wound in the pericardium permits the escape of blood from that sac and so diminishes the risk of rapidly fatal embarrassment of the heart's action; the circumstances of the case, the site, and direction of the wound in the body wall make diagnosis less difficult and so facilitate treatment, and the patient and his heart tissue are often healthy. That such ruptures of the heart have been recovered from, with and without operative treatment, is familiar enough.

An Unusual Case.

The following case is of interest for two reasons—because of the nearly complete absence of skeletal and superficial injury following upon extreme violence and because of the unusual nature and circumstances of the heart's rupture.

A well built, healthy shipwright, aged 23 years, sustained a clean, unbroken fall of 45 feet, alighting on a wooden plank and some steel plates lying on the ground. The precise position of his body at the end of the fall was not known. He was not killed outright, but was dead on his arrival at hospital some 20 minutes later.

On post mortem examination of the body about six and a half hours after death rigor mortis had not begun. Preliminary inspection revealed no damage beyond a few scratches and bruising at the right elbow. A deliberate examination by inspection and palpation showed no further evidence of bruising, laceration, fracture, or dislocation. The peritoneal cavity contained about 2½ to 3 pints of fluid blood, of which the source appeared to be five transverse lacerations of the right lobe of the liver—four on its upper, one on its under surface immediately to the right of the transverse fissure. There was a considerable quantity of blood effused into the retroperitoneal tissue. There were two transverse tears about half an inch apart on the front of the right kidney near its middle, one through little more than the capsule, and one about ¼ inch in depth through practically the entire width of the kidney. No other source of retroperitoneal hæmorrhage was found. No other abdominal injury was discovered.

I failed to identify the source of a moderate extravasation of blood into the cellular tissue of the posterior mediastinum. This blood extended to the back of the root of each lung underneath the pleura, but not into the substance of either lung, which, indeed, appeared to be normal throughout. The pericardium was intact and contained about a pint and a half of fluid blood. After considerable search a slit like opening into the cavity of the left auricle was found, about a quarter of a centimetre in length, and situated exactly in the length of the free edge of the left auricular appendage.

Professor S. G. Shattock kindly made a microscopical examination of the appendage wall, and reports that there is no trace of any form of disease.

Remarks on the Case.

The height above the ground of the planks from which deceased fell was 45 ft., and the fall was unbroken. The injuries were thus caused by the violent impact of the body against the plank and plates on the ground. The visceral injuries, and particularly the fact that the ruptures in the liver and right kidney were transverse in direction, suggest antero posterior compression of the trunk, and the complete absence of bruising of the body wall is remarkable. It would seem on first thought almost incredible that such a fall should occasion no injuries other than visceral. It is probable, however, that such cases are not so very uncommon, and it is therefore important that they should be recorded, as the question is one of considerable legal importance.

In this case the nature and accompanying conditions of the cardiac rupture raise questions as to the mode of its production. Cases of cardiac rupture are commonly divided into two classes, spontaneous and traumatic. The former occur from within because a local weakness of the heart's wall renders it there unable to withstand the pressure of the contained blood. Such local weakness is most commonly the result of disease, and its favourite seat is the left ventricle. Spontaneous rupture of the entire thickness of the heart's wall is rapidly and, doubtless, invariably fatal, because the shed blood, accumulating within the intact pericardium, quickly embarrasses the heart's action to the point of stoppage, and because it is practically impossible to diagnose and so directly treat the condition in the short time available. That spontaneous rupture of a quite healthy heart ever occurs may be doubted. A cautious reference to a possible case of this is given in Wilks and Moxon, "Pathological Anatomy" (p. 120).

Delayed Traumatic Rupture of the Heart.

But there are cases of traumatic rupture of the heart without wound of the pericardium, and these tend to resemble cases of spontaneous rupture in their rapid course. Again, trauma may cause injury of the heart's wall without immediate rupture, but after an interval the injured area may prove the site of a rupture, which may be described as "delayed traumatic" or "spontaneous" according to predilection. Where the interval between the receipt of injury and death is considerable difficult questions about the cause of death may be raised by claims for monetary compensation or damages for fatal accidents.

An excellent illustrative case of delayed traumatic rupture of the heart has been described to me by my colleague, Dr. J. Donaldson, as occurring in his practice.

The patient was a bricklayer, aged 68, unusually deep chested, who enjoyed good general health. He was working beside a large iron pipe close to which were the rails on which bogey trucks ran. On the approach of a truck he stood with his back pressed close against the pipe in order that the truck might clear him. Owing to his depth of chest the truck which had cleared others just failed to clear him, and squeezed the front of his chest, scraping the skin, but doing no further apparent local injury. He was in bed for two weeks and resumed work after three weeks. His pulse rate showed no departure from the normal, and his general condition called for no special remark or anxiety. After three days' resumption of work he felt unable to continue, his chief complaint being pain in the chest. He was confined to bed again for two weeks, during which his pulse-rate rose gradually from 30 to 60. He appeared to be progressing favourably when he suddenly died. A post-mortem examination revealed no injury of any part of the chest wall, except the scraping of the skin. The pericardium was intact and full of blood. No disease of any part of the heart substance was found. The left ventricle alone was injured. Its wall was bruised in five places, three in front and two behind. The largest bruise, the size of a shilling and extending through the greater part of the wall's thickness, was in front near the apex. Here the ventricle wall was ruptured.

Results of Pressure.

Traumatic rupture of the heart within an intact pericardium is almost certainly due either to compression or concussion. Pressure may act in two ways. It may either directly injure the heart tissue (by bruising) so that the injured part gives way immediately or later, or else, without directly injuring the heart tissue, it may so raise the intracardiac blood pressure that the healthy heart wall is burst from within. Compression depends on the amount of force, concussion on the rapidity of its application. In Dr. Donaldson's case the circumstances suggest that compression alone was operative, the heart being squeezed between the front and back of the thorax. Professor Shattock has been kind enough to inform me of three cases of traumatic rupture with intact pericardium. Two of these are among the "gunshot" injuries from the seat of war in the Royal College of Surgeons of England.

In one (specimen No. 657) there was a shell wound of the skin in the left midaxillary line, comminuted fracture of the fourth and fifth ribs, and laceration of the left lung. The anterior wall of the left ventricle shows a vertical perforation occupied by clot in which no missile was found, and no wound was found in the pericardium. The interval between the times of wound and death is not mentioned. Such an injury points to contusion of the heart wall by the broken ribs acting through lung tissue and pericardium. Its mode of production also permits of the action of concussion. The latter factor may have been still more operative in the other gunshot case (specimen No. 486) in which there was a non-penetrating wound of the thoracic wall, without fracture of ribs or sternum, the pericardium was found distended with blood, and the anterior wall of the right ventricle showed a minute rupture. In the third case, related to Professor Shattock by Mr. C. F. Beadles, a lunatic was struck on the chest with a spade. A rupture of the heart was found without fracture of bone.

In these two last cases, as in that of the shipwright, the circumstances suggest that concussion, as distinct from compression, *may* have played a part. But what that part amounted to it is impossible to calculate. In the shipwright's case the fact that the heart wall showed no sign of injury except the rupture itself indicates that pressure probably operated through its effect on the blood within the left auricle. This would be most effective when the auricle was at its maximal distension; and the site of the rupture suggests that the incidence of the pressure on the distended auricle has been such as to tend to drive the contained blood away from the natural openings and towards the blind extremity of the chamber.

PROPOSED HOME FOR INVESTIGATION AT HARROGATE.—The establishment at Harrogate of a clinic for the investigation (as opposed to the prolonged treatment) of chronic diseases and of disorders of metabolism, on lines similar to those of the well-known Duff House, Banffshire, is in process. Suitable premises are being adapted to accommodate 30 beds in the first instance, further extensions being made as the need arises. The staff will consist of a resident physician, visiting physicians and surgeons, a radiologist, and a pathologist. Certain members of a fully trained nursing staff will be detailed to control the department of dietetics. Special lines of investigation will be undertaken as opportunity offers, and the results will be collated and published from time to time. It is stated that the scheme is to be constituted as a limited liability company nuder the management of a board of directors, on which the medical profession is to be represented in sufficient numbers to ensure that the institution is conducted on lines conformable with professional requirements and traditions.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

CONGENITAL STENOSIS OF THE AORTA.

BY R. O. MOON, M.D. OXON., F.R.C.P. LOND.,
PHYSICIAN, NATIONAL HOSPITAL FOR DISEASES OF THE HEART, WESTMORELAND STREET, W.

THE special points of interest in this case are the very few symptoms calling attention to the heart, combined with the pronounced physical signs and the comparatively slight impairment of the boy's general activity.

D. R., a boy, aged 11 years, came as an out-patient to the Heart Hospital in March, 1919, *complaining of "headache, looseness of the bowels, and some recent epistaxis."* There was nothing of importance in the family history. During the first 18 months of his life he had apparently been somewhat delicate, and in the early *weeks of infancy his mother said that "he had seemed to strain for* breath at times," but had never been taken to a doctor for it. When 18 months old he had measles and shortly afterwards he was taken to the Children's Hospital, Kensington, when the parents learnt for the first time that his heart was diseased.

At the age of 3½ years he is said to have brought up a large quantity of blood, which seems to have been vomited, and was taken to St. Mary's Hospital, where he remained for six weeks and "congenital morbus cordis" was diagnosed, a thrill over the aortic area and a basic systolic murmur being specially noted. After this his general health remained good apart from occasional attacks of epistaxis. He would, however, often complain of headache and have to stay away from school for a day or two on that account. He was always active and energetic and could always walk a fair distance and even play football without becoming breathless or tired, though he got breathless sooner than other boys. In general appearance he was distinctly undersized, very pale, but bright and intelligent-looking. The apex beat was in the fifth space in the nipple line with a somewhat forcible cardiac impulse and the dullness a trifle increased to the left. Over the aortic area there was a very coarse systolic thrill, which was also palpable over the carotid arteries. All over the præcordial area there was a harsh systolic murmur, having a maximum *intensity at the second right* interspace, where it could be heard several inches from the chest wall. Pulse was small in volume, rate 70.

The X rays showed nothing abnormal, but in the electrocardiogram the T-wave was *inverted in Leads II. and III.*, while in Lead III. the P-wave was inverted. There was no evidence of left-sided preponderance. The Wassermann reaction was negative. The boy was brought back to the hospital six months later, feeling quite well, for permission (which was given) for an anæsthetic for the removal of teeth. Some three weeks later I heard that he had died quite suddenly at school, having seemed perfectly well in the same morning.

Dr. K. E. Eckenstein, who did the post-mortem, found a much enlarged thymus gland. Lungs, liver, spleen, and kidneys were normal. The heart weighed 8½ oz. Thickness of left ventricular wall 3-3·5 cm.

Professor Sir G. Sims Woodhead kindly made a special examination of the heart for me, and his report is as follows:—

> There is well-marked evidence of old endocarditis on the left side, though little on the right side. The aortic cusps are enormously and irregularly thickened, "cartilaginoid," rigid and adherent at the angles, with rounding and retraction at the margins. During life, owing to stenosis, this must have given rise to marked interference with the passage of the blood from the ventricle to the aorta with, in all probability, a certain degree of regurgitation through incompetence from the rigidity of the valves and thickening and irregularity of their margins. At one point near the edge, and apparently at the junction of two cusps, is a slightly more recent fibrous mass, which seems to me to be an indication that the process of cicatrisation and fibrous tissue formation has been going on intermittently for a considerable period. At the base of the mitral flap, just below the aortic valve on the ventricular side, there is some thickening and fatty (?) degeneration, apparently the result of some past inflammatory condition. The mitral valve itself appears to be slightly contracted, and on the side of the ventricular wall divided by two indentations, also indicating mischief at some very *remote period. The ring at* the base of the valve is irregular, but I do not think there has been either obstruction or incompetence in any marked degree, though the thickening of the ring and the imperfect closure may have allowed of some reflux and of the formation of fluid veins as the blood passed directly through. The marked stenosis has led to very great hypertrophy of the wall of the left ventricle, but the muscle appears to be sound, though at points where the musculi papillares join the chordæ tendineæ, and from some distance down into the muscle there is an *increase of fibrous tissue.* This, however, is not an important feature. There is little or no dilatation. In the hypertrophied muscle there appears to be an increase in the amount of fibrillar tissue; this, of course, being much more marked near the endocardium where the endocarditis is a prominent feature.
>
> The external cusp of the tricuspid valve appears to be similarly irregularly divided, slightly thickened and retracted, and is very interesting. The pulmonary valves are normal. There was no abnormal communication between the chambers.

Remarks.

While coarctation of the aorta—i.e., the constriction of the descending arch—at a point between the left subclavian and the insertion of ductus arteriosus, though among the rarer of congenital abnormalities is yet not so very uncommon, a congenital stenosis at the level of the aortic valves is exceedingly rare; when it does occur it is usually due to the absence of one of the sigmoid valves and the exaggerated development taken on by the two others, the physical signs being those of an acquired aortic stenosis. The slight degree of impairment of general activity in view of the great contraction of the aortic orifice is, no doubt, partly explained by the great hypertrophy of the muscular tissue of the left ventricle, which was quite healthy, and the absence of any appreciable dilatation. This healthiness of the muscular tissue militates against the usual supposition that an inverted T-wave in Lead II. is indicative of myocardial degeneration. The pathological significance in this case of an inverted P in Lead III. I am unable to explain, apart from the fact that the auricular impulse must have arisen at an abnormal focus.

Montagu square, W.

OBSTRUCTION DUE TO THE FORMATION OF A SPUR AFTER FINNEY'S OPERATION.

By R. P. Rowlands, M.S. Lond., F.R.C.S. Eng.,
SURGEON TO GUY'S HOSPITAL

It may be remembered that in Finney's method of gastro-duodenostomy the pylorus, the pyloric end of the stomach, and the first part of the duodenum are, if necessary, thoroughly freed from adhesions, and the contiguous borders of the stomach and duodenum are incised downwards from the strictured pylorus for 2½ to 3 in. In this way the pyloric opening is greatly and permanently enlarged and pyloric spasm is prevented. (See Fig. 1.)

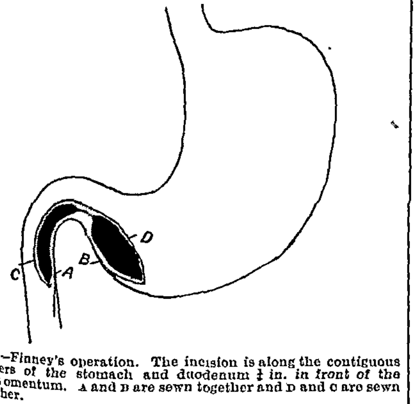

Fig 1.—Finney's operation. The incision is along the contiguous borders of the stomach and duodenum ¾ in. in front of the great omentum. A and B are sewn together and D and C are sewn together.

The following case, in which Finney's operation for gastro-duodenostomy had been performed, is, as far as the writer knows, unique. A spur formed below the anastomosis and almost completely hindered the exit of food from the stomach, with the result that the patient became so extremely thin that malignant disease was feared. An operation was only undertaken as a forlorn hope. Gastro-jejunostomy completely relieved the patient, who has since then ceased vomiting and has gained much weight.

L. J., a married woman, aged 40. Neurotic and thin. Had suffered for several years from indigestion, vomiting, and hæmatemesis. A diagnosis of gastric ulcer was made and she was admitted to Guy's Hospital for operation two years ago. A chronically inflamed appendix was removed and a dilated prolapsed stomach, with an ulcer on the lesser curvature 3 in. from the pylorus, was found. The pylorus and duodenum were movable and healthy, and as the stomach was much dilated and the patient of the neurotic type pylorospasm due to the gastric ulcer was thought to be an important element, and Finney's operation was chosen instead of gastro-jejunostomy. This was easily performed, a 3½ in. opening being made. The patient did very well while in hospital and went home within three weeks. Unfortunately, her doctor died just then, and his partner being at the war no one supervised her after-treatment.

Before very long vomiting returned and gradually increased and the patient lost flesh during the next two years. She was readmitted to Guy's in February, 1920, extremely emaciated, weighing only 5 st., and was examined thoroughly by radiography and chemical analysis of the gastric juice. Both these examinations were unsatisfactory because the patient vomited almost immediately after swallowing anything. The gastric shadow was small and distorted, and there was marked achylia. It was therefore suggested that she had a gastric carcinoma high up. Cardiospasm or other obstruction of the œsophagus was, however, definitely excluded by the X ray examination. As a last resort I explored the abdomen and was surprised to find a greatly dilated hypertrophied stomach; the ulcer had quite healed, leaving no trace beyond a small scar. The pyloric end of the stomach was greatly dilated and rounded off, the first part of the duodenum having become part of it. (See Fig. 2.) It was then recognised that there was a valvular obstruction between the stomach and the duodenum, and a posterior gastro-jejunostomy was rapidly performed. The patient went out of hospital eating almost full diet, putting on weight and gaining strength, and four months later I heard that she was doing well.

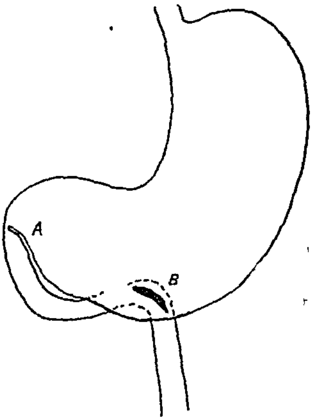

Fig. 2.—Spur formation after Finney's operation. A, Spur. B, Opening made at secondary gastro-duodenostomy.

The Advantages and Disadvantages of the Operation.

It is claimed that Finney's operation is easy and simple, and can be performed in a very short time. This is a distinct advantage when pyloric stenosis coexists with hour-glass contraction, and has to be treated after gastro-gastrostomy in a feeble patient. It is also claimed that the size and position of the new orifice are such as to provide free drainage of the stomach, unless the latter is greatly dilated and atonic; that spur formation and the development of a vicious circle are impossible, and that there is a special freedom from post-operative nausea and vomiting. The operation is thus peculiarly valuable for nervous women (regurgitation of bile does occur in some cases, however); even a large ulcer may be removed from the anterior aspect of the pylorus, stomach, or duodenum without fear of subsequent cicatricial contraction. There is no risk of jejunal ulceration after this operation. It does not interfere with digestion in the duodenum or with the reflex secretion of bile and pancreatic juice; hence absorption should be a little better than after short-circuiting.

Disadvantages.—Although the operation is a great improvement on pyloroplasty, the separation of adhesions is troublesome and may be dangerous. The after-results are not quite so good as those of gastro-jejunostomy. It is contra-indicated in most cases of active ulceration or with dense adhesions, and its mortality is higher than that of gastro-jejunostomy. The mesogastrium may be too short or the duodenum may be too fixed to allow easy approximation of the parts, which may then have to be joined in the depth of the wound. To these disadvantages the slight risk of spur formation must be added. This complication would seem more likely to happen with a greatly dilated prolapsed stomach and freely movable second part of the duodenum. A large opening, extending well down the gastric pouch, would diminish the risk.

Queen Anne-street, W.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF OPHTHALMOLOGY.

EXHIBITION OF CASES AND SPECIMENS.

A CLINICAL meeting of this section of the Royal Society of Medicine was held on June 9th, Mr. **W. T. HOLMES SPICER**, the President, being in the chair.

Perithelioma of the Lid (?)

Mr. **R. S. CHARSLEY** showed a specimen of what he regarded as Perithelioma of the Lid. The tumour had been mistaken for an ordinary meibomian cyst by the practitioner and incised by him. When the case was referred to the exhibitor he removed the tumour, and the man remained in good health for two months. At the end of that period, however, the temporal bone began to enlarge, and the patient became less vigorous. Two months later still he developed weakness in the spine, and ultimately curvature there, probably due to a recurrence in the vertebræ. Death took place six months after the tumour became prominent. A pathologist pronounced it to be perithelioma. Mr. Charsley found the tumour at the operation was encapsuled, was easy to remove, and there had been no recurrence in situ when the man died.—Mr. **TREACHER COLLINS** regarded the growth as an alveolar sarcoma.—Mr. **M. S. MAYOU** alluded to the large size of the cells in the tumour, and inclined to the view that it was perithelioma. He had seen such tumours break down into soft caseous masses.

Mr. **LESLIE PATON** related the particulars of a case of Endothelioma of the Orbit, which he removed, completely in his own and others' view, but there was a progressive spread subsequently to the various glands of the body, the death two years after the appearance of the original growth having been directly due to a large mediastinal growth of the same nature.

Neuro-fibromatosis.

Mr. **A. W. ORMOND** showed a case of Neuro-fibromatosis (von Recklinghausen's disease). There was extensive pigmentation over the body, especially on the parts usually coloured, and there were many soft tumours, which felt like fibro-lipomata. The man was 28 years of age, a gardener, and his complaint on coming to the hospital was of headache and failure of sight. The vision was 6/18 in each eye, and there was optic atrophy as a sequel of papillœdema. Wassermann reaction was negative. The patient's hands and feet were larger than normal, and the supra-orbital ridges were very prominent; there was also some kyphosis. The tumours were not tender on manipulation. The systolic blood pressure was 105 mm., the diastolic 80. He thought the association of conditions pointed to over-action of the pituitary body, not unlikely to be due to a condition affecting the fibrous tissue at the base of the brain. Alexis Thomson had shown that in the recorded cases practically all the cranial nerves, in one or other of them, had been involved. Mr. Ormond exhibited skiagrams of the skull.—Mr. **J. H. FISHER** thought that probably there had been an irritation of the pituitary body, causing the hypersecretion which eventuated in the acromegaly.

Cyst of the Iris.

Mr. **W. H. MCMULLEN** exhibited a patient with Cyst of the Iris. It had been dealt with by iridectomy, part of the cyst being removed. There was no history in this case of injury with resulting implantation of epithelium, the usual course of events in these cases. The condition was noticed when the child was less than a year old, hence it was either congenital or had developed at a very early age. As the tension of the eye was normal and the condition appeared to cause no inconvenience, he proposed to leave it alone.—Mr. **FISHER** related a similar case, and thought there had probably been an accidental puncture which had not been noticed and which quickly healed up.—Mr. **TREACHER COLLINS** pointed out that cysts of the iris did sometimes arise without there having been a puncture injury. Endothelial cysts could be cured by transfixion, and he related a case in point.—Sir **WILLIAM LISTER** thought the careless habit of some women of putting pins and needles in pillows and cushions might be answerable for some of these cases; the baby might be put on to such a pillow and nothing wrong be noticed, as there would probably be rapid healing.—Mr. **ORMOND** supported Sir William Lister's view, and spoke of three or four cases he had had fairly recently in which the parents had no idea of how the condition was caused.

Other Cases Shown.

The **PRESIDENT** exhibited a patient who had Horse-shoe-shaped Opacities in the Cornea. The only complaint was a gradually diminishing vision during the last few years. No other member of the family had a similar condition. The history obtainable was purely negative.

Mr. **G. W. ROLL** showed a child, aged 3 years, the subject of Herpes Ophthalmicus. The attack occurred in February last, simultaneously with chicken-pox, the eruption remaining on the brow. Part of the eruption was along the nasal nerve to the tip of the nose, and the cornea also was involved. The intimate connexion between chicken-pox and herpes ophthalmicus had been noted by many observers. He referred to other cases of the condition.

The **PRESIDENT** and Mr. **FISHER** related similar cases.

Mr. **J. F. CUNNINGHAM** brought forward a case in which a mass obscured the optic disc. The school medical officer discovered the defective vision, and the father brought the boy to the ophthalmic hospital, where a history of trauma was elicited.

Dr. **RAYNER BATTEN** showed a case of Superficial Punctate Keratitis, which had persisted two years and proved very resistant to a great variety of treatments.

The **PRESIDENT** mentioned a similar case in his own practice, in which the treatment seemed equally hopeless. In that case the disease, after a number of years, appeared to wear itself out.

Mr. **MCMULLEN** showed a second case, one of Congenital Malformation in the Outer Canthus, an appearance unique in his experience and in that of others whom he had shown the patient to. The outer extremities of the left lids were separated by a low pad or cushion of tissue covered with skin. The suggestion of an amniotic band and adhesion before the displacement which had been made seemed a likely one.—Mr. **TREACHER COLLINS** said the case reminded him of the class of case described by Sir George Berry, of which the speaker had himself had examples, in whom there was a remarkable symmetrical flattening of the malar bones, causing him at first to suspect that the patients were brothers. He thought the condition was best explained on the hypothesis of some delayed closure of the cleft between the fronto-nasal plate and the superior maxillary plate at the outer canthus.

Mr. **M. L. HINE** showed a case in which a sebaceous horn had become malignant, had recurred after removal, and was very greatly improved by a single eight-hour application of radium. The case was still under treatment and observation.

The concluding exhibits were a case of Furrow Keratitis by Mr. **P. G. DOYNE** and a specimen of "Daylight Glass" by Mr. **W. WALLACE**, such as had been evolved from the investigations in Cornell University, U.S.A. It was very largely employed in that country for microscope work, and was also used in many large factories.

NORWICH MEDICO-CHIRURGICAL SOCIETY.

EXHIBITION OF CASES AND SPECIMENS.

A CLINICAL meeting of this society was held at the Norfolk and Norwich Hospital on June 1st, when a number of interesting and unusual cases were shown.

Dr. **H. MUIR EVANS** (Lowestoft) exhibited two specimens of Uterine Myomata with Complications, and Sir **HAMILTON BALLANCE** exhibited the following specimens (1) prostate removed entire from a man of 76, showing a well marked middle lobe, (2) large papilloma growing from the anterior wall of the bladder, removed from a man of 65, (3) pylorus and adjacent parts of stomach and duodenum, showing a malignant growth, removed from a woman of 50

Sir H BALLANCE also showed the following cases —

1 Boy aged 6 with severe double congenital talipes equino varus The left foot had been operated on—the astragalus navicular cuboid and some of the anterior part of the os calcis had been removed There was still some displacement inwards of the anterior half of the foot to be corrected

2 Man aged 34 Gunshot wound of the left arm four and a half years previously causing complete and permanent paralysis of the musculo-spiral nerve with wrist drop The palmaris longus tendon was divided and sutured to the long extensor of the thumb the flexor carpi radialis to the common extensor of the fingers and the flexor carpi ulnaris to the extensor carpi ulnaris

3 Man aged 29 Wounded five years ago in left chest and abdomen portions of the seventh and eighth ribs being carried away Four years ago silver wire filigree 4½ in by 3 in was inserted to cure a hernia where the ribs were missing At the present time the patient has great discomfort from a large hernia of the stomach through the diaphragm into the left side of the chest which it is proposed to operate upon The heart is displaced to the right Two skiagrams taken with bismuth in the stomach were shown one with the patient standing up and the other when he is lying down The wire filigree appeared in position

Mr G MAXTED showed a very interesting case of Congenital Coloboma of the Disc, which had been at first diagnosed as a case of glaucoma

Mr A J BLAXLAND showed a case of Excision of the Rectum, with preservation of the external sphincter He also showed a case of Sprengel s Shoulder (congenital elevation of the scapula), though some of the members did not agree as to the diagnosis

Dr MUIR EVANS exhibited a case of Renal Dwarfism in a girl of 17, in which the prominent symptoms were arrested growth, difficulty in walking, marked genu valgum, enlargement of the ends of the ribs, combined with a urine of low specific gravity (1005) containing a considerable amount of albumin, and a low blood pressure (80) He referred to several cases of renal disease associated with bone changes which had been described by Dr Hugh Barber, of Derby, in a paper published in THE LANCET last January

Dr H J STARLING brought forward a case of the rare condition known as

Coarctation of the Aorta

The patient was a pensioner aged 40 who had been before the war a railway labourer doing heavy work. He enlisted in June 1915 and was sent to Mesopotamia in January 1916 when he began to have dyspnœa and was transferred to a hospital in India for V D H thence to Alexandria where the case was diagnosed as aortic aneurysm He was sent to England and discharged in August 1916 for V D H and orchitis and has done no work since Present symptoms are pain round the precordium and dyspnœa on exertion Pulse rate is 76 after 40 hops 100 after one minute 80 X rays show no evidence of aneurysm The apex beat is heaving in the fifth space just outside the nipple line A blowing systolic murmur can be heard at the apex in all postures and the aortic second sound is accentuated The subclavian radial and carotid arteries are hard full and heaving The blood pressure in the brachial artery is 255–148 The abdominal aorta and the femoral and popliteal arteries are difficult to detect and the blood pressure in this system is too low to be estimated accurately There is a mass of varicose arteries in each axilla and tortuous arteries can be seen or felt under the skin in the areas supplied by the intercostal mammary epigastric and other arteries The course of the blood is from above downwards

Dr Starling said that this condition was due to a partial or complete obliteration of the aorta just below the left subclavian artery 142 cases had been recorded, 9 in infants and 133 in adults, 92 being males and 41 females the majority had died between 20 and 40 years of age, but one case lived to the age of 92

Pellagra

Dr G A GOLDEN, assistant medical officer, Norfolk County Asylum, showed a case of Pellagra in a female patient the subject of chronic mania with dementia The characteristic sun burnt appearance of the backs of the hands and wrists was well marked, and there was a pustular eruption round the mouth, though the rash was not so marked as it had been the day before Dr Golden could not account for the causation of the disease in this case, but referred to some similar cases which had occurred at Napsbury Asylum, and were recorded by the late Dr G S Blandy in THE LANCET of Sept 6th, 1913 Dr Golden said that pellagra was practically unknown in England, except for its occasional occurrence in asylums

Reviews and Notices of Books.

TRAITE DE L'IMMUNITE DANS LES MALADIES INFECTIEUSES

By JULES BORDET Paris Masson et Cie 1919 Pp 720 Fr 40

IT is nearly 20 years since the appearance of Metchnikoff s "Immunity, ' and among the various later volumes on the subject which have been published none has covered the ground in quite the same broad way The accumulation of details on the basis of the generalisations of Metchnikoff and Ehrlich has been tremendous, good, bad, and indifferent data have been heaped on top of one another into chaotic piles many earnest immunologues have been too busy doing Wassermann's test in an improved way, or quarrelling about anaphylaxis to try to make out what it all means, it has been easier to give a dose of vaccine or to invent a fresh penny in the slot diagnostic test The inspiration of the fundamental theorems of the "nineties" has been dying away, and in the absence of any general ideas to replace them serology has drifted into what bears a tolerable likeness to a blind alley It is plainly time to take a serious survey of the position and Bordet s sane, sensible discussion of the facts and fancies of immunity is not the least of the many conspicuous services he has rendered to the study of infection He provides a well balanced review of immunity as a wide biological problem rather than as a by path of medicine Like many good books, it asks more questions than it answers and carries with it that placid stimulation which is the comfort of the scholarly products of learned men

The author has been in the thick of the subject from the beginning, and he weaves together the old facts and the very real progress of recent years into a tale so coherent that his readers will feel that the ground is strong enough to carry the fresh investigations which his pleasant narrative will stimulate them to undertake Of course, the whole of "immunity is not in the book anyone who wants to will probably find the section on his own pet topic defective No one could make a place for all the trees, real and sham, in his picture of this particular wood But the picture as a whole, is a very good one, and the new committee on biological drugs might well set it as a compulsory text for manufacturers of sera and vaccines

There are some dreadful omissions—no index and no references to literature and the table of contents is quite inadequate The author remarks in the preface that a bibliography would have been too much trouble, and recommends those who want further details to hunt up the names (which he quotes mostly with dates) in the *Bulletin* or *Centralblatt* It is exasperating that no one finished off the book properly when the author got bored, for these mechanical defects greatly damage its use for reference

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MANUAL OF VENEREAL DISEASES FOR STUDENTS

By Colonel L W HARRISON, D S O, M B, Ch B London Henry Frowde and Hodder and Stoughton 1920 Pp 360 27*s* 6*d*

THE author has produced an excellent text book for students A "Manual of Venereal Diseases for Students bears a very great resemblance to the "Diagnosis and Treatment of Venereal Diseases in General Practice, a work that has had an extremely favourable reception from the profession We confidently anticipate that the Manual for Students will be as favourably received Little has been lost in the process of condensation Some useful chapters have been added A brief description is given in Chapter IV of the technique of urethroscopy and of the common lesions seen during such an examination The importance of instituting the most stringent tests of cure in the case of gonorrhœa has been rightly emphasised Chapter V is devoted to the difficult subject of gonorrhœa in women, a side of venereal disease that was formerly neglected in many text books but the supreme importance of which is now universally recognised. The author is cautious and non-committal when dealing with the subject, and Chapter XXVI. is perhaps less convincing to the reader than any other portion of the book. However, the subject is admittedly a difficult one, and one on which it is impossible yet to write with any certainty—much clinical experience remains here to be recorded before dogma becomes possible. Four useful appendices have been added to the book. The first of these gives a sketch of the principles underlying complement-fixation tests, and the second a description of common stains used in the detection of micro-organisms. The third and fourth appendices furnish formulæ for use in the treatment of gonorrhœa and of syphilis respectively. Additional coloured plates and illustrations appear in the new Manual and contribute considerably to its interest.

Although written primarily for the student, the Manual of Venereal Diseases will appeal with equal force to the general practitioner. It is eminently a practical work, and the amount of information it contains within its 360 pages is prodigious. When the small amount of knowledge of venereal diseases that has been demanded of medical examinees in the past is considered, the quantity of information set before the student by Colonel Harrison appears at first sight somewhat overwhelming. However, as the author states in his preface, the importance in medicine of gonorrhœa and syphilis cannot be easily overestimated. In the past the student's knowledge of these diseases has been totally inadequate, and it is only within the last few years that this has been apparent. A text-book of the quality of Colonel Harrison's Manual of Venereal Diseases should do much to repair this omission. The work should receive favour from student and qualified practitioner alike.

MODERN ANÆSTHETICS.

Second edition. By J. F. W. SILK, M.D. London: Edward Arnold. 1920. Pp. 191.

THIS little book remains an eminently pleasant one from which the student can learn the elements of the theory and practice of anæsthetics. The second edition has been kept to about the size of the first, although the latest developments are duly recorded. Dr. Silk had the advantage of acting as consulting anæsthetist during the war, which gave him an unusually wide view of the practice of other men, and he has not failed to utilise the experience. His own preference, if he were asked for a routine anæsthetic, appears to be for open ether with 3 per cent. chloroform, and he is fond of the Rendle's inhaler. We think he dismisses the management of abdominal cases a little cursorily, and that he might with advantage have added a paragraph on anæsthetics in labour.

DOMUS DOLORIS.

By W. COMPTON LEITH. London and New York: John Lane. 1919. Pp. 222. 7*s.* 6*d.*

Hooker, the great English seventeenth-century divine, once wrote a panegyric on the Psalms which he had adapted from an exposition of Torquemada the Dominican, and part of it ran thus:—

> "Heroical magnanimity, exquisite justice, grave moderation exact wisdom, patience unfeigned, unwearied patience, ... all good necessary to be known or done or had, this one celestial fountain yieldeth. Let there be any grief or disease ...... any wound or sickness named, for which there is not in this treasure house a present comfortable remedy at all times ready to be found."

This passage always seems to us as applicable to the treatment of sickness and wounds as to the treatment of souls, and we think it more than probable that Mr. Compton Leith had it in mind when he wrote the very charming essay on a hospital which is now before us, and that all the more as his writing is saturated with seventeenth-century rhythms. His is a striking book, and any reader who has worked in a hospital will feel even more proud of having done so than he did before. Anyone, moreover —and there are all too many to-day—who has been a tient should feel grateful to Mr. Leith for having out in noble words the feelings which he should but may be unable to express. The praises of the staff, the consciousness that all who work in a hospital are members of a great fellowship, the parallel drawn between a hospital and a university, are finely imagined, and Mr. Leith's prose has exactly caught the elusive character of thoughts during sickness and convalescence—the reader is carried on as in a dream. Anyone who knows his classics will revel in the happy allusions to, and quotations from, the great writers of Greece and Rome, of which there are many—e.g., we have noted Homer, Thucydides, Æschylus, Aristophanes, Theocritus, Lucretius, Virgil, Juvenal, and the practically unknown Sulpitia, whom Mr. Leith is good enough to mention by name, fearing, we presume, and rightly so, that otherwise but few of his readers would know to whom he was referring. The medical profession owes a debt of gratitude to Mr. Leith for this "epaenetic"—to use one of his own words—of our calling.

THE BRITISH SYSTEM OF PHYSICAL EDUCATION.

By BEATRICE E. BEAR, M.B.A.P.T., Co-Principal of the Queen Alexandra's House Physical Training College. London: G. Bell and Sons, Ltd. 1920. Illustrated. Pp. 128. 8*s.* 6*d.* net.

THIS book is, we presume, intended to serve as a class-book in the college of which the author is co-principal. For students elsewhere it is inadequate; for teachers it contains little that will help them. In the preface the Swedish system is described as the grammar, and the British as the literature, of physical education. The text either pre-supposes a knowledge of the "grammar" or ignores its importance. Thus we read that games and sports are held to be necessary for all-round development, and yet no further reference is made to them. In the Swedish system, as we know it, dancing and games form an integral part of training, despite the fact that Sir James Crichton-Browne, in his introduction, stigmatises this system as "a drill." The author devotes much space to marching, but if this is supposed to replace the dancing of the Swedish system we frankly prefer the latter. To those unfamiliar with the technicalities of physical training and education a perusal of this book may be impeded by unfamiliarity with the abbreviations freely used. The method of illustration is good, though Figs. 17, 45, and 51 (apparently made from the same block) depict an almost impossible exaggeration of position.

SAPPHIRE WINGS.

By Surgeon-Major COOK, 1st C.B. Roy. Fus. London: J. Hewetson and Son. 1920. Pp. 68. 2*s.* 6*d.*

Surgeon-Major Cook has several volumes of verse to his credit, and we see no reason why this one should be the last, for his muse is not exacting. There is nothing very distinguished in thought or expression in the volume before us, but the author exhibits a technical facility which many bards might envy, and a definite point of view which many lack. We ourselves should have to be up very betimes to rhyme reason, puttees on, policeman, and squeeze on, with diocesan; and it is remarkable that this feat should have been accomplished, as we are assured it was, in hours snatched from slumber after a hard day's work. The two dozen poems in this collection touch on a variety of subjects from Heaven to the Royal Academy, and there is tough scientific stuff as well.

"Deaths by disease were, erstwhile, six to one
  Of wounds that slay,
Disease now claims but one, to sixteen slain—
  A better way;
Nine out of ten given back, if six hours run
  Ere death has sway;
And those for whom Field Hospital is won—
  Ninety and five see day!
Now, of each hundred wounded, at the Base,
  Full ninety-eight
Reach home. . . . . ."

This is ingenious, even though pedantry may prefer the form in which the Registrar-General presents his statistics. The following line contains a heresy—

"Knew the canker that lay burning at the root."

The best cankers never burn; they gnaw.

THE GENERAL COUNCIL OF MEDICAL EDUCATION AND REGISTRATION.

—o—

THURSDAY, JUNE 3RD.

AT a meeting of the Council on this date SIR JAMES HODSDON, the Chairman of the Committee, submitted the

Report of Dental Education and Examination Committee,

which set out the returns of the professional examinations in 1919 and of exemptions granted by the dental authorities.

The PRESIDENT remarked that the tendency was increasing throughout all the Dominions to restrict the practice of dentistry to duly registered people, hence the mother country was being surrounded by a ring of self governing Dominions which in this matter were in advance of her.

The report was agreed to

Teaching of the Preventive Aspects of Medicine
A Significant Report.

DR. MACKAY (chairman of the Education Committee) presented a Further Report by the Committee,[1] which was made the occasion of an exhaustive discussion. The Report ran in substance as follows —

The Committee first draw attention to a Memorandum by Sir George Newman, entitled "Some Notes on Medical Education in England' [2], to "An Inquiry into the Medical Curriculum, published by the Edinburgh Pathological Club [3] and to the resolutions (1916)[4] and recommendations (1909) which have been issued by the Council to teaching and qualifying bodies After allusion to the fact that the term "Preventive Medicine" in the Circular Letter referred to the *general education of the student in medicine*, and not to special instruction in hygiene, it is pointed out that the Letter has had in view what may be called the pre morbid state and the necessity devolving upon the practitioner of taking measure to eliminate influences affecting individuals professionally under his care which threaten to produce disease The replies to the Letter received by the Committee indicate by their general tenor that present day training does not concern itself sufficiently with the preparation of the student for the discharge of these important *elements of the practitioner s duty*

The particular points raised concern primarily that *portion of* the teaching work which belongs to what is here called the clinical group of teachers, those who directly train the student for the practice of his profession, but as the earlier courses of study form together a graduated scheme of instruction designed to prepare the student to receive the actual training in his life work, which he can only *obtain* at the hands of his clinical teachers, it is clear that the whole *curriculum necessarily comes under review*

Since, under the *particular aspect of* "*Preventive* Medicine ' to which attention has been called, the recognition of pre morbid and early morbid conditions is essential, an accurate knowledge of the limits of normality in structure, function, and reaction in the human body is specially called for This involves the special consideration of the teaching in anatomy, physiology, and pharmacology, and on the other side of the boundary line, of pathology also It is proposed to call the attention of the Council in the first place to *certain general considerations* which affect the question as a whole, and afterwards to deal very briefly with the particular aspect of the problem as it presents itself to each of the several departments A full and open discussion will pave the way to ultimate solution The ideal curriculum cannot yet be established students begin too early, teachers are over burdened, clinical instruction is often carried out under adverse conditions

The particular aspect of medical training to which, under the name of ' Preventive Medicine,' *the attention of the schools* has been called represents the *first stage of a coördinated system* The reply sent by the University of Oxford to the questionnaire may be quoted in this connexion "It is accepted that, generally speaking, either from the clinical or from the pathological standpoint, disease is more easily recognised in its later stages As the student has to be taught the easier problems first, it follows to a certain extent in *practical* instruction disease must be taught in the reverse order of its development '

The consideration of the length of the curriculum would naturally be taken up in ordinary circumstances at the close of the discussion, but it is to be noted that none of the bodies which have sent in replies have proposed that the teaching period should be extended, although many speak of an overloaded curriculum It is impossible to avoid some overlapping in discussion and it will be found *convenient to take*, in the *first place, the distribution of the* work of training among the different classes of teachers and the allocation of each particular branch to its appropriate place in the curriculum The clinical teachers, the sole instructors of the *student in all that concerns the actual practice of the profession*, are naturally *deeply versed in the earlier* sciences, but they practise a science *of their own*, and *medicine is infinitely more* than a mere combination of these The principles of physiology, pharmacology, and pathology are united in one system working in an environment in which material, vital, and spiritual influences are blended, and having its own laws and its own evolutionary history Until recently the clinical teachers undertook the whole work of medical training but the vast increase of breadth and the multiplication of details in every department of medical study have *compelled specialism* It *lies with the staff* in medicine, surgery, and *midwifery, and in all the minor branches of these departments* to deal with the *whole training of the student* The ancillary subjects cannot be exalted by their teachers without impairing coordination of the whole when either the student or the teacher undertakes work for which he is not qualified Sir George Newman's Memorandum points out, talking of the clinical aspects of anatomy, that the principal anatomical lessons should be introduced by the clinical teachers 'as an integral part of the clinical aspect, and in dealing with the teaching of obstetrics and gynæcology he takes a similar view

The importance *of the question of the proper coordination of* studies has been specially emphasised in many of the replies A full discussion of the subject is contained in the report from Guy s Hospital Medical School and many interesting suggestions are proposed therein The Edinburgh Pathological Club also deals exhaustively with the subject, and puts forward a detailed scheme embodying their proposals for the distribution of the several studies throughout the curriculum One of their suggestions, to *the effect that the student should begin his clinical instruction in his first year, will probably not prove acceptable to the majority of* teachers The work of the clinical instructors is already very severe, and the overcrowding of clinical classes with students wholly untrained, having no knowledge either of bodily structure or bodily function, would not tend to lessen it The necessity for coördination of studies is convincingly stated by Sir George Newman "There must be reasoned effort to eliminate the unnecessary and the redundant, and to concentrate on the essential things ' ' We *may* well *reduce the data of botany and chemistry and* begin with the *preliminary* sciences earlier we may strip the study of anatomy and physiology of useless memorising of unimportant detail we may abolish a considerable amount of materia medica and some pharmaceutical work, we may diminish the number of systematic lectures in almost all directions and we may bring tutorials and our examination system into subjection The consideration of the Council is invited to the general principles on which *coördination of studies should be based*

The *ideal scientific method in training* cannot be realised in entirety in medicine because of the circumstances in which the teachers must of necessity work Subjects cannot be taught as progressive sciences in themselves when they are ancillary to something else The vast increase in recent years of medical knowledge, the bringing to light of new facts, have augmented the difficulties of the teacher, and now there is grave danger that the scientific spirit and scientific methods *of instruction may be forgotten, and that medical education may degenerate into an elaborate* and laborious system of memorising The danger is imminent, it seriously affects the future of medical research in this country Some of the difficulties are unavoidable, others may be met The more serious may be overcome if it be generally agreed that from the teachers in the earlier sciences (the term is used to include all except the clinical subjects) no more is to be expected than that they should impart to their students an intelligent and scientific appreciation *of the subjects which they profess* Doubtless they *should*, but always *in pursuit of their* primary objects make use, *as far as* possible, of material likely to be of subsequent clinical interest to the student, and employ such clinical knowledge as they possess in illustrating and emphasising the importance of particular branches of their work, but their real teaching should be confined to their own special spheres

In a report made to the Council *in 1890* the *Education Committee*, discussing *the length of the curriculum* and advocating its *extension to five years* made the following statement concerning the methods of examination "The Committee would further remark in view of the potent influence of methods of examination in determining methods of education that it would tend greatly to induce more attention to practical work were the practical part of the examination in all the subjects *extended and less time occupied* with the written examination ' *This piece of advice seems to have been lost sight of, perhaps because it did not go far enough* Preparation *for the* written examination compels the student to text book work Knowing that his success will largely depend on the completeness of his answer he expends much time and effort in memorising many details, of the relative importance of which he cannot judge, since his text book seeks to *give all* without discrimination The text book is a danger to the *student it tends to* destroy his own *initiative and judgment* The preparation for oral and *practical* examinations demands the seeing and handling the subject and discussion with teachers, and so promotes the student s understanding and corrects his reading The Council might well re-open the discussion of 1890 and consider the methods of examination

The aims of the present Inquiry are primarily *concerned* with clinical work, and to extend and *improve the opportunities* for clinical study *These may be realised by an extension* of the clinical period, *adding to it at either end* The former plan would lengthen the curriculum, the latter would require the introduction of blocks to prevent the encroachment upon the clinical time Clinical teachers have complained of these encroachments already The precise question may therefore be stated—Can the teaching of the *subjects* preparatory to clinical study be made *lighter* and less exacting on the student and, at the *same time*, be better adapted to his future *needs?* Otherwise there must be extension of the time-period of the whole curriculum, the addition to be exclusively devoted to clinical work, but consideration must be given to the needs and conditions of each of the earlier subjects and an extensive readjustment made of teaching methods and arrangements *If some* measure of agreement should be reached on the general questions raised in the Report, the necessary investigation may be to some extent simplified. Some detailed suggestions are put forward for discussion.

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[1] An Interim Report by the Education Committee *on this subject* was presented to the Council *on* Nov 26th, 1919 It is printed in extenso in the minutes of the Council for 1919 (pp 347-393) The Interim Report contains in an appendix a number of replies to the Circular Letter on the subject addressed by the Council to the teaching bodies Additional replies received since the November Session of the Council are embodied in the appendix to the present Report The letter was addressed to 38 *bodies in all*, replies have now been received *from 30 of these*

[2] THE LANCET, August 3rd, 1918, p 147

[3] THE LANCET, Jan 26th, 1918, p 147

[4] THE LANCET, Dec 9th, 1916, p 988

Preliminary Education in General Knowledge.—Much advantage would be gained were the minimum age at entrance raised to 18. The last two years of school life might be largely devoted to chemistry and physics, and a pass-certificate in these subjects of the higher standard might be accepted for some portion of the work in inorganic chemistry and general physics in the schools of medicine. This would naturally lessen the pressure in the first year of the curriculum and increase the time available for the study of anatomy and physiology. If the change be made it must be universally applicable. The teaching in all the earlier subjects is carried on and amplified by the teachers in all the later subjects, each employing some portion of the organised knowledge which the student has gained and amplifying it for his own special ends. The curriculum cannot be divided into separate compartments. All the teachers, for instance, who follow the biologist are adding to the students' knowledge of biology something which the biologist cannot himself give them. It is the duty of the later teachers to carry on the teaching of all the sciences which precede their own sciences in the curriculum. The courses in the preliminary sciences must of necessity be general in their nature. At the same time, wherever possible, the earlier teacher in selecting his material should make use of all which, without detriment to his special purpose, is likely to arouse the interest of the student in the practical applications of the subject throughout his later work.

Biology.—Applied biology should be taught later to the student in the classes of anatomy, physiology, pathology, bacteriology, public health, and medicine. There is not much divergence of opinion among the replies as regards the teaching of this subject and the preliminary sciences generally.

Chemistry.—Inorganic chemistry, if taught in schools for two years to pupils above 16 years of age and certified by a pass-certificate of the higher standard, as has been suggested above, might with advantage replace the elementary course usually given in the schools of medicine. Organic chemistry, on the other hand, should probably, for the present at least, be retained in the curriculum; its study demands a closer application than the average school-boy is accustomed to give. The subject is taught in applied form in physiology, pathology, pharmacology, medicine, and public health.

Physics.—The subject should include the elementary mechanics of solids and fluids, and the rudiments of heat, sound, light, and electricity. There is usually allotted to it in the curriculum a period of three months' study (lectures and practical). The subject forms an essential basis for every branch of medical study. The teacher naturally cannot specialise in physical therapeutics, radiology, and electrical treatment as is suggested in the Circular Letter; he has barely time to deal adequately with the most general principles of his science. If physics were undertaken by the schools under conditions similar to those which have been mentioned in connexion with inorganic chemistry, there would not only be some slight ving in time, but a vast improvement in teaching.

Anatomy.—The subjects of anatomy and physiology of necessity overlap, but while recognising this, it is of advantage to treat them separately in the present inquiry, as their teaching methods differ widely in practice. No subject in the whole curriculum is so overburdened with detail as is anatomy, and its study and examinations constitute on this account a danger to the student. The reasons for this are sufficiently obvious. The teaching of embryology in the medical schools is of comparatively recent date; even in the near past teachers of anatomy have frequently been surgeons, and have naturally taught the subject, to a large extent, from the point of view of its clinical applications; from the observance of this custom medical teaching has not yet been entirely emancipated; the subject itself demands the memorising of many details not yet explainable under scientific principles. Anatomy should be taught as a science, an end in itself, not as a clinical study but as a preparation for clinical study. It should be based as far as possible on morphology and embryology, with constant reference to physiology, and should be illustrated as freely as possible by demonstrations from the field of pathology which immediately succeeds to it in the curriculum. As the teacher is called upon to give the student comprehension of the development and structure of every organ of the body, osteology must be dealt with in detail, as also arthrology, myology, the central nervous system, the lymphatic system, and the general distribution of peripheral vessels and nerves. Without continuous teaching in embryology few of the complications of his subject can be understood by the student. He should be taught the anatomy of the living body, embracing in this the normal bodily proportions, surface markings, the positions of the viscera, and the actions of the joints and muscles. This is the true interpretation of the term applied anatomy, which is used in two senses in the replies to the Circular Letter. On the other hand, the anatomist should avoid in his teaching all that would naturally fall into a course of surgical anatomy given by a surgeon in the clinical years of study, during the period when the student is concerned with clinical problems and in direct contact with clinical cases. The student may be spared in the ordinary anatomy class very much of the vast accumulation of minute details concerning the inter-relation and the fine distribution of vessels and nerves with which his text-books are loaded. The work of the dissecting-room, continued through a period of five terms, is intended to familiarise the student with bodily structure, to let him see and handle, but not to fit him for examination in minute details. It is a preparation for, but not a study of, surgical anatomy.

Physiology.—The teaching usually extends through three terms, and is carried out in a lecture course and in three practical classes dealing respectively with histology, animal experimental physiology, and chemical physiology. In view of the importance of the subject it cannot be said that too much time is given to physiology, or that anything is likely to be gained by reducing the period of study; but, on the other hand, a modification and a rearrangement of the work might indirectly be of assistance to the clinical teachers by lightening their labours, and would, at the same time, be likely to increase the practical value of the course to the student.

As has been suggested in discussing the teaching of anatomy, a practical course dealing with the employment of physiological methods in the study of the normal human being might with much advantage be instituted. This proposal is put forward and strongly pressed by Sir George Newman, who gives by way of example a specimen syllabus of the suggested course. It deals with the examination of the heart in action, blood pressure, and blood counting; with respiration and the determination of vital capacity; with the use of the clinical thermometer; with electric stimulation of muscles, muscle fatigue, and muscle reflexes; with the practical examination of sensory impressions from skin, muscles, labyrinth, and eye; and with the testing of the functional integrity of the various organs of the body. This may be named a course in applied physiology. To make room for the effective carrying out of a syllabus based on these or similar lines a considerable portion of the usual course in experimental animal physiology might advantageously be dispensed with. Oxford University has established, under the name of clinical physiology, a special course dealing with the physiology of man, in respect to the cerebrum, to dietary, to particular muscular acts, to some features of the human life-cycle, &c. Where this is not already done it might be well to follow the Oxford example. A number of replies to the Circular Letter approved the institution of courses of applied anatomy and physiology, as instituted at Middlesex Hospital.

Materia Medica, Pharmacy, Pharmacology, Therapeutics.—Sir George Newman considers that the two former might be largely dispensed with, that pharmacology should be taught in the laboratory as continuation of physiology, and might be limited to the study of the action of some 40 to 50 drugs, of the most important of which he gives a list. The instructor in therapeutics should be a clinical teacher well skilled in pharmacology, and the study of the subject should be carried on in the wards and out-patient departments. The teaching should deal not only with the effect of drugs, carefully watched from day to day, but with the influences of other remedial agencies, as dietetics, rest, hygiene, hydrotherapy, electric treatment, Finsen light, X rays, radiotherapy, remedial gymnastics, thermotherapy, climatology, open air, massage, and psychotherapy. The teacher should also pay special attention to the actions of vaccines, antitoxin serums, thyroid extract, and salvarsan.

Pathology and Bacteriology.—Many of the bodies have taken no notice of these subjects, but almost all which have dealt with them in their replies are in agreement that bacteriology is sufficiently taught. In pathology some admit deficiencies in the teaching, particularly as regards ætiology and the recognition for preventive purposes of the earliest indications of disease. Others in this connexion state that instruction in clinical pathology is given later in the curriculum. The exceeding difficulties of procuring autopsies in Ireland is noted from University College, Cork. Sir George Newman, pointing out that pathology, broadly speaking, is "Medicine, the Study of Disease," advocates the establishment of pathological institutes, properly staffed, in connexion with the teaching hospitals, and a remarkable memorandum from Guy's Hospital covers this and similar ground. The course outlined by Sir George Newman is virtually "clinical pathology," and deals with a most important aspect of the subject which has hitherto been largely neglected; it should be continued to the end of the curriculum, and should be examined on in the final or qualifying examination along with medicine, surgery, and midwifery. There should be, however, a precedent course on the general principles of pathology, which, however, might be materially reduced in length if clinical teaching were systematised. Comparative pathology might also be dealt with in the laboratory of the medical school or university.

Normal Psychology.—Fourteen bodies have given attention to the interrogation concerning this subject, and the majority hold that some instruction should be given by the lecturer in mental diseases as a prelude to his course. Few regard the subject as falling within the domain of physiology.

Public Health, Hygiene, Preventive Medicine.—On this subject, variously designated among the teaching bodies under the titles given above, no one can speak with greater authority than Sir George Newman, and the attention of all the schools is called to the chapter devoted to it in his Memorandum. After discussing the general aspects of the teaching, he gives in detail, in an addendum, a statement suggesting the scope of the teaching required by the ordinary student: "The following statement is intended to be suggestive of the nature of the preventive medicine which should form an integral part of the warp and woof of the medical curriculum. Certain sections should no doubt be incorporated in the course of hygiene for medical students; other sections should be included in the appropriate subjects of the curriculum, such as physiology, pathology, medicine, surgery, or obstetrics, which in greater or less degree is the case at the present time in some schools. The proposal is not to add a new subject, nor to lengthen the student's curriculum as a whole, nor even to inflate the subject of 'hygiene'; the essential point is that every medical student, before or after graduation, shall receive proper instruction in these matters (some of which are at present almost wholly ignored), and become imbued with the purpose, practice, and spirit of preventive medicine. He must understand the preventive aspect of medicine, surgery, and obstetrics. The statement, which has been advisedly kept simple and elementary, is designed for the medical student, and not for the student reading for a diploma in public health. A consideration of the daily needs of the medical practitioner in ordinary practice in England or Wales will, it is submitted, be found to justify the contents of the statement, the subjects of which should be illustrated and taught, as far as practicable, by means of demonstration or example."

The statement contains 24 sections, and specifies in detail the contents of each. The subdivisions may be omitted here, and the headings alone quoted: (1) meaning and scope of preventive medicine; (2) administrative machinery of preventive medicine; (3) maternity; (4) medical care of infancy; (5) the young child; (6) school hygiene; (7) personal hygiene of adolescent and adult; (8) the dwelling house; (9) the housing question; (10) food-supply; (11) milk-supply; (12) water-supply and the public health; (13) alcohol and alcoholism; (14) infection and infectious diseases;

(15) principles of epidemiology, (16) diseases of animals communicable to man, (17) the prevention of infective disease (18) vaccination and antitoxin inoculation, (19) prevention of other forms of disease, (20) vital statistics, (21) health insurance, (22) nuisances and dangerous trades, (23) industrial hygiene, (24) medico-sociological questions in relation to medical practice

The course will naturally fall into the final year of study At first sight it may appear to be unduly extensive, but a large proportion of its contents will already, in a properly coördinated curriculum, have engaged the attention of the student in other classes Thus it will serve a double purpose (1) the instruction of the student in the methods and results of recent work in public health and (2) the focussing of his knowledge, gained in many departments of study, upon the preventive aspects of medicine

Surgery, Medicine, and Midwifery —It is proposed to postpone the consideration of the teaching arrangements in the great clinical subjects In discussion much will depend on the reply to the question whether or not the teaching of the earlier sciences can be so modified as to give the clinical teachers a more adequate opportunity than they possess at present of satisfactorily overtaking their subjects In the medical curriculum the two groups of necessity react on one another Further, it is not proposed at the present stage to issue any special recommendations Before any change can actually be made in the curriculum general agreement is essential, and to the possibility of that attainment the expressed opinion of the Council is probably the best guide In view of the important issues involved, it is hoped that the various points raised in the Report will be fully discussed in the course of the session

The Report has been prepared by the Chairman after an analysis of the replies received from the teaching bodies The Committee is of opinion that the questions which have been raised involve the revision of the whole curriculum in medicine, and suggests that the Council should remit to it for further report the consideration of the methods under which the necessary revision may best be carried out

Dr. Mackay, in presenting the Report, outlined the history of the movement towards an improved curriculum, remarking that the diagnosis of morbid conditions was not even to day receiving the instruction and the attention it should The matter needed long and careful consideration, but the present was an opportune time to make a beginning. The curriculum had been divided into two groups of subjects, the chief being the clinical, and, secondly, all the other subjects which could be regarded as ancillary to them. The real teacher of medicine was the clinical teacher, all the others having as their function the preparing of the student's mind for the reception of what would constitute his life's work. With regard to the preliminary education of the student, the Report suggested that the Council should consider whether there would be an advantage in not allowing a student to begin his medical course until his eighteenth year, thus allowing him to receive the previous training which would fit him to receive the instruction for his chosen work. In all the other great countries the commencing age was higher than here. If the age were raised the student might be called upon to pass a more extensive preliminary, and possibly physics and inorganic chemistry might be included in his school work, thereby greatly relieving the pressure in his first medical year. An important point was the proper coördination of the different subjects in the curriculum, not only to avoid overlapping, but with the view to seeing that the student received instruction in any one subject at the time he was interested in it and was able to benefit most from it. For instance, many parts of clinical surgery could be taught with anatomy, for in the absence of a clinical interest and application, anatomy was apt to be a mere matter of memorising It could advantageously be largely taught on the living body. In physiology too much attention was paid to minute experimental details; there should be rather a concentration on the normal physiology, including percussion, heart sounds, and estimation of blood pressure Pathology, he held, might be divided into general and clinical. It had been suggested that the ground covered in pharmacology could be much reduced by paying particular attention to 40 or 50 of the more important drugs, thereby reducing much of the memory work. Sir George Newman, in his Memorandum proposed that pharmacology should be taught in the laboratory as a continuation of physiology, together with other subjects such as hygiene, dietetics, hydrotherapy, and electrical treatment. Dr. Mackay asked the Council to discuss the report fully.

Dr. MCVAIL seconded.

Dr. NORMAN WALKER spoke of the importance of the report, and on his suggestion the Council resolved itself into Committee to allow of an unfettered discussion.

Sir NORMAN MOORE reminded his colleagues that their object was to lay down the parts of knowledge which were necessary to be acquired before men were considered fit to practise their profession. That predominant function had been somewhat lost sight of in some of the discussions at Council meetings. All sorts of reasons had been advanced for either adding subjects to the curriculum or taking subjects from it, or modifying the degree of knowledge required. It must never be forgotten that the element of time was an important one, otherwise a man might go on until he was 35, and still have some subjects left to master. In present conditions in the country and in practice, men should not be required to study more than five years in order to qualify. How much time ought to be given to medicine, surgery, and midwifery? With regard to preliminary education, he laid stress on whether the youth had received such education as to make him wish to enter a university With reference to chemistry, physics, and biology, he would like to hear that question discussed first from the point of view of what the mind could retain. Men in practice seemed usually to have retained but little of what they had been taught about them. Formerly, biology as a subject was not required at all. Anatomy and physiology were most practical subjects, and they should be taught with a definite relationship to professional needs during the whole time He would like to see anatomy so taught as to use up as little as possible of the five years, while at the same time having a very definite effect on the mind of the student. Moreover, the scarcity of bodies made it necessary to have a change of method in pursuing this study. There was a tendency to allot to physiology a bigger place in the curriculum than it deserved, and he agreed that leading principles should be concentrated upon He implored the Council to keep always in mind the producing of a thoroughly trained medical man.

Sir JAMES HODSDON agreed that the Council had to legislate for the minimum, and that any recommendations made were, at this stage, no more than suggestions. It would be conceded that men were not being turned out as practitioners in accordance with modern notions, especially on the subject of preventive medicine. The chief reason was the tendency to encroach on the fifth year of study, and to teach earlier subjects in more or less "water tight" compartments, as if the students were going to be specialists in each one. His view was that there should be fewer lectures and less didactic teaching, and the giving of more tutorial and practical instruction. The student was burdened with examinations throughout the whole of his course. He thought the records as to the way the student had been doing his work should be available at the examination, it would tell the examiner much more than he could ascertain by ten minutes of questioning A point which members of the Council had to ask themselves was whether the earlier subjects could be somewhat curtailed, so as to give more time to those embraced in the Finals, or whether there should be a rearrangement of subjects to secure better coördination.

Sir JOHN MOORE said he had felt in recent years that the five year curriculum had been essentially a retrograde step so far as the attainment of a knowledge of medicine was concerned. The prime matter in the mind of the student was as to how he could pass his examinations. But clinical work could not be learned from the lips of a teacher. In his experience there had recently been a marked falling off in actual direct clinical work in the wards, and the following up of cases to see the results of treatment To have a multiplicity of examinations, in his view, was wrong. The place for the ancillary subjects was the school, and he agreed with those who would postpone the commencement of medical study to at least the seventeenth year.

Sir GEORGE NEWMAN reviewed the whole subject. He warmly agreed with Sir Norman Moore that in considering the medical curriculum members of the Council had to consider the product, which should be a clinical product. The question was, What kind of medical man did the times require for the immediate future? The new demands which the State had made on the medical man must be faced. Public health was the communal aspect of preventive medicine. The State was now making demands on two-thirds or three-fourths of the profession, as against the former demand of one-fourth. The demands were, in the main, clinical. No greater mistake could be made than to contend that State medicine was non-clinical; he would view with great concern any attempt to divorce State medical work from clinical work. He wished to put in a plea for a recognition of the importance of the preliminary science subjects; there should be the desire to strengthen rather than weaken them. The practitioner needed to be more biological, more chemical, rather than less; more, rather than less, ready to apply to his work the great principles of physics and chemistry. The time was now more than ripe to consider a broad and generous reform. He thought the curriculum should be lightened at both ends. At present the student was not being given time to think or digest knowledge—time for real study; it was a rush from the beginning of the first year to the end of the fifth. True culture or true learning could never be acquired on the priniciple of a general scrimmage. His second suggestion was that there should be an attempt to coördinate the preliminary scientific and intermediate subjects with each other and with the clinical, and to make them much more applied. Thirdly, the Council should consider a reorganisation of clinical teaching, so that the student could have of the best, not the residuum; and that the teacher should not give of his best to his practice, but to his university. Fourthly, he wanted to see provision for the student to have an ampler education in venereal disease, tuberculosis, maternity and infant welfare, orthopædics, and mental diseases—he advisedly omitted mention of specialties. Many men were being turned out of the medical schools unequipped in the subjects he had named. In the combat with venereal disease, for instance, no solution would be found until the mass of practitioners were equipped to deal with that disease; its roots were too deep, and the provision of clinics was not a solution. Much the same could be said about the others. His fifth point was that there should be some kind of post-graduate equipment and education, both to assist towards specialisation and to continue the ordinary medical education of the practitioner. His last word in debate was that there should be reformation of the examination system; it should be made to follow the training, not to decide it and lead it. It should include the process of preparing the student, should be made not a hazard, but a certainty. This would alter for the better the whole of the student's outlook; it would bring the student to his books, to his specimens, to his cases and his bedside work in an entirely new spirit.

Sir GILBERT BARLING said that at Birmingham they had arranged that in all the categories except medicine the student should carry his markings with him, the exception being due to the fact that in medicine an extern examiner coöperated, and he could know nothing of the student's previous work. He mentioned the reference in the Report which implied that the future general practitioner is possibly not receiving such a training as will qualify him to diagnose and treat disease in its very earliest manifestations; such a passage might have been taken from contributions which one had become accustomed to in the *Times* lately. The tendency was to throw on the general practitioner the most difficult part of the practice of medicine. Would the education which could be given to the student enable him to recognise with certainty the earliest beginnings of disease? That needed the best possible training which medicine and surgery could provide. He thought weeks should be devoted to the anatomy of the brain and spinal cord. Nothing could be cut out of the clinical curriculum as it now existed, but it was sure to be added to. This was not the time to ask people to devote great additional expense to training; but if the number of candidates for the profession were to greatly increase, then the curriculum could be boldly extended.

Dr. NORMAN WALKER moved the adjournment of the debate.

FRIDAY, JUNE 4TH.

Report of the Pharmacopœia Committee.

Sir NORMAN MOORE submitted this report and pointed out its main provisions, saying that the sales of the Pharmacopœia to the end of May, 1920, had been 1582 in seven months, or 36,852 since the date of publication. The Committee had agreed to approach the Government with the suggestion that a public institution should be established for the official standardisation of such remedies as serums and vaccines. The Minister of Health had now taken the matter up and appointed a special committee to advise him on the measures which should be taken. Sir Norman Moore made grateful reference to the help which Sir Nestor Tirard had rendered to the Committee over a long period.

Sir JOHN MOORE seconded the resolution for the adoption of the report and it was carried, as was also a proposition to appoint Sir Nestor Tirard as secretary of the Committee at a due remuneration.

Resumed Debate on the Report of the Education Committee.

Dr. NORMAN WALKER, in resuming the debate, said he had recently returned from the United States, where there was no General Medical Council, and where every university was free to do what it liked in the matter of medical education, always, however, keeping in view the passing of the examination, failure in which was held to be to the discredit of the university. They were also under the voluntary influence of an Association under which schools were classified. The success of a school depended on its remaining in category A. One effect of this classification was, that whereas formerly there were 439 schools, the number was now 89, of which 72 were classed A. The standard in these latter was high, and the professors in them must be full-time professors. The association between the hospitals and the universities was, in most places, very close. To qualify for Class A schools, students must have had four years of high school education and two years collegiate education—some schools required three years. All Class A schools included chemistry, physics, biology, and a foreign language. The medical curriculum extended over four years, but the student was not admitted to the examination of the National Board until he had served one year as an intern in either a hospital or a laboratory. The supply of bodies there was so good as to allow half a body for each student to do his anatomy on. Much stress was laid there on embryology, and in anatomy great attention was paid to neurology, and this was carried well into the third year. The same was true of bacteriology and of biochemistry. Most of the schools had a whole-time professor of biochemistry. The laboratories were beautifully equipped, and money seemed to have been readily forthcoming for them. He was much interested in one of the classes on operative surgery. The class was divided into sections of 80 students, and there was a rotation of duties as surgeon, assistant surgeon, anæsthetist, and family doctor. Should the surgery—on the cadaver—be voted unsuccessful, an appointed coroner held an inquest. And in that land of liberty the students were more orderly than here, more definitely responsive to authority. Great care was exerted in admitting students, hence the best material was obtained for securing good results. There were physicians and surgeons on the "whole-time" staff, but they had consulting rooms in the hospital and received their private patients there, making a good income thereby. These professors had all the resources of the hospital at their disposal. Dr. Walker said he was a great believer in the value of good lectures, though there were subjects on which the number of lectures was overdone. He found in the States an amount of coöperation between the university and the city which was most interesting. The city of Cincinnati supported its university, and was responsible for the salaries of the university medical faculty and for the whole of the medical treatment of the city. All the special hospitals were in association with the teaching hospital, and the students had access to all of them. Dr. Walker thought chemistry, physics, and biology should be taken before the student commenced his study of medicine. There were now too many medical students, and there would soon be far too many doctors, and the taking of those three subjects quite early would enable men to find out soon if they were not cut out for a medical career. He would like the medical curriculum to be of four and a half years' duration—he would even be content with four, because there was a way of lengthening the curriculum by making the terms longer; 32 weeks for study out of the 52 was not a large proportion. The session at Minnesota University went on all the year round, and the holidays accounted for only seven weeks. This would mean more teachers, because the same teachers could not be expected to continue during the whole year. Certainly there should be more paid professors' assistants. Also the present limitation of hours for teaching in hospital should be removed. He regarded the "intern year" as a splendid thing. We had many hospitals where no teaching was done, yet nothing so raised the status of a hospital as to make it a teaching institution. In America medical societies arranged for professors in specialties to attend the town at definite dates, when practitioners brought their cases for consultation and instruction. This idea was welcomed and was growing. He concluded by expressing a warm eulogium on the Mayo Clinic.

Dr. RUSSELL WELLS spoke of his 17 years on the Senate of London University, and said the time had fully arrived for taking stock of the position in regard to medical education, and for ascertaining wherein their deficiencies lay, at the same time preserving our undoubted excellencies. The literary standard required in the preliminary examination for medicine—modified second class College of Preceptors—was very low, so low as to constitute a disgrace; the standard accepted was refused by the solicitors, accountants, and even auctioneers and estate agents, yet it was the portal of a profession which demanded high intellectual attainment. He thought students might be encouraged to enter hospital at the age of 18. It was the first year which determined the attitude of the student towards his work. He strongly urged that the various subjects should be taught from the standpoint of their application to medicine. And it was not desirable to make one series of lectures do for two sets of students. Chemistry should run through the whole course, and he would like to see some form of biological chemistry in the final examination. The same applied to anatomy and physiology.

Dr. MCVAIL expressed the hope that Dr. Norman Walker would publish for the benefit of the profession what he had learned as to American methods. When he, the speaker, first moved in this matter it was to ascertain whether the practitioners of the future were being taught to fully realise the opportunities lying before them of dealing with the early stages of disease. The question of lengthening or otherwise modifying the curriculum could very well be considered in a practical way by a committee of this Council, for their body embraced specialist teachers in the different branches, and they could be given power to coöpt outside help. The subject was the most important which had come before the Council for a quarter of a century.

Sir ARTHUR CHANCE considered that the preliminary education was very important; if a man was well educated he had already advanced one-fourth of the way towards being a practitioner. Examination would not make him worthy, any more than measuring a man would make him taller. The teacher had so far not received much attention in this discussion. He did not know a professor in Ireland who received half as much as he could make by private practice. It must be remembered that the five years' course was the minimum requirement, but the average time taken to qualify was: in England, 6½ years; in Scotland, 5 years 8 months; in Ireland, 5 years 11 months. He considered the first need was for a weeding out of the curriculum, to take out the things least useful and valuable, and concentrate on real essentials. Preliminary science should be taken before commencing medical subjects, but there was a danger of that science being taught in a perfunctory manner. It need not be very deep, but, so far as it went, it must be sound.

Dr. LITTLEJOHN said this Council was largely responsible for the present position of medical teaching in the country, because whereas in 1869 it gave a lead as to what ought to be done, it had not since moved with the times, but had rather kept back medical teaching as desired by those who would have made progress; it had shown no elasticity. It would be an advantage to dispense with the water-tight compartments. For instance, anatomy should not necessarily be finished by a certain time. He objected to waiting two or three years for the change; in Edinburgh they were waiting for a lead from the Council so that they could establish certain professorships, such as one in biochemistry. Nor would he slavishly sit at the feet of America in this matter, as at one time we did at the feet of Germany; he contended that the merit was not all on one side. He had long advocated an intern year for students, the value of which he pleaded.

Dr. MACDONALD spoke from the standpoint of the general practitioner, and declared that a number of men were sent out as general practitioners who were not capable of fulfilling the duty required of them, and that failure he attributed to their training not having been practical enough; they were not taught the interdependence of the various subjects and their general applicability to medicine. There were certainly not enough professors and teachers; their numbers ought to be quadrupled.

Dr. DEAN said all felt that the present curriculum was badly overcrowded; something must be omitted and other means of shortening carried out if any attention at all was to be given to new subjects. He hoped any future questionaires to the teaching schools would raise the point whether any course could be omitted altogether. At present a disproportionate amount of time was spent in the lecture-room, and there was a good deal of overlapping. With regard to pharmacology and therapeutics, Sir George Newman considered that teachers should be skilled in and be able to teach the values of dietetics, rest, hygiene, hydrotherapy, electric treatment, Finsen light, X rays, radiotherapy, remedial gymnastics, thermotherapy, climatology, open air, massage, and psychotherapy, as well as giving special attention to the actions of vaccines, antitoxin serums, thyroid extract, and salvarsan. It required excessively able teachers to deal with all these. If it was intended that these subjects should be dealt with in one course, the arrangement was an unnatural one. In every medical school he would like to see a committee of coördination, at which the various teachers would meet and learn each other's scope. In chemistry the medical student should be taught in a separate class; not medical chemistry, but chemistry for medical students. If there was to be any curtailment, he asked that it should not be at the expense of chemistry and physics; it could be done at the expense of zoology and botany. If men did not preserve their knowledge of physiology in later life, that seemed to show that their teaching had been too theoretical. With regard to the final subjects, there was room for much more collaboration and coöperation between the teachers in pathology, medicine, surgery, and gynæcology; and he thought more attention ought to be given to morbid physiology.

Professor THOMSON asked the Council to keep carefully in mind that it was the minimum they had to settle.

Dr. CATON thought there were signs that more men would try to enter the profession than there was room for. The Council should ensure that every portal of entry to the profession should be of sufficient type, so that all who passed through it should have the capacity to take due advantage of the subsequent training. He lamented the almost entire disappearance of classical studies in many cases. Greek and Latin were of great importance in developing mind and character, even if only pursued moderately. In the teaching of chemistry, physics, biology, and botany, those subjects were now so extensive that the teaching of them to the medical student should be directed always to his life-work. He hoped the preliminary examination would be so framed, and that cramming would avail less than ever.

Sir **JAMES HODSDON** expressed his appreciation of the admirable Report. He discussed the two forms of anatomical nomenclature being used, and urged that there should be a uniform nomenclature on the subject for all English-speaking peoples. There was a strong feeling in many quarters that the old system should not be departed from.

Dr. **DIXON** said he held very strong views about the nomenclature used in anatomy, but so strongly did he feel the need for uniformity that he would be willing to adopt terms he did not like in order to secure it. He hoped the final report on the matter now under discussion would be in such a form that it could not be thought to hinder the universities from making suggestions, because the conditions in different places varied enormously. In regard to anatomy, there was need to stimulate the interest of the student in every possible way; therefore the Council should not insist on that subject being taught as a science in itself.

Mr. **E. B. TURNER** said the student must be taught to think for himself; the knowledge which a man got for himself was the knowledge which would abide with him. He had a great belief in the value of a classical education. Unless the general practitioner received training in preventive medicine he would fail in the never-ending fight against disease. Patients suffering in the incipient stages of disease always went to the general practitioner first, and it was he who went into patients' homes and knew their conditions and surroundings.

Professor **T. W. GRIFFITH** agreed that the study of chemistry, physics, and biology should be transferred to the school, but there the teaching should be done by those who were fully competent for the work. The lectures should be very valuable, and they should contain matter which was not to be found in the ordinary text-book; he had a good deal of contempt for mere text-book dissertations. He would like to see the number of lectures on medicine reduced and their quality raised; the lecturer should know months in advance what was expected of him, so that he could give careful preparation. Much had been said about preventing overlapping, but there might be overlapping of a good kind, and the teacher should not mind kicking over the traces a little. The lectures on anatomy and physiology should be illuminated by references to practical points.

Professor **LEATHES** said that after a long discussion at Sheffield the teachers of anatomy and physiology had offered to shorten the amount of time they had required at the beginning of the course, and the net result of the suggestions was that the student would have three years to devote to clinical work. During the third and fourth years there would be a certain amount of laboratory instruction. Their proposals involved the breaking down of the rigid boundary wall between anatomy, physiology, chemistry, and physics, and they had instituted a chair of pharmacology, the occupant of which would be whole-time, except in so far as he had duties in the hospital.

Sir **JENNER VERRALL** said the Council must beware of aiming at a standard which the public would not be prepared to accept; and, on the other hand, it must always be remembered that the Council had to legislate for a progressive science. The men turned out for practice should have a clear recognition of the limitations of their own knowledge, so that they should not essay to deal with what was beyond their competency.

Dr. **ADAMS** expressed his warm support of Sir George Newman's contention that the teachers should give the student marks for his work throughout his career; that in itself would help to a better appreciation of the candidate's capacity, and would largely obviate the nervousness from which so many suffered.

The **PRESIDENT** read to the Council the only document which it had to guide it on this matter; and this stated "that the period of study shall be a period of bona fide study of not less than five years," and it proceeded to enumerate the subjects. There was nothing of a "cast-iron" nature in that regulation. It had stood as an instruction since 1893.

He then reported from Committee to the whole Council, and, on the proposition of Dr. **MACKAY**, the following recommendation was submitted:—

> "The Committee begs to submit to the Council the foregoing report on 'the teaching of the preventive aspects of medicine,' which has been prepared by the chairman after an analysis of the replies received *from the teaching bodies*. The Committee is of opinion that the questions which have been raised involve the revision of the whole curriculum in medicine, and suggest that the Council should remit to it for further report the consideration of the methods under which the necessary revision may best be carried out."

Sir **NORMAN MOORE** seconded, and it was agreed to, and in addition that the Committee coöpt such members of the Council as it was felt could render it service.

It was further agreed that copies of the report be sent to the various schools, and such additional copies as might be asked for up to ten.

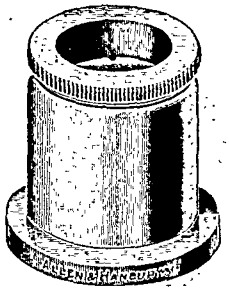
Colonel King was reappointed Registrar, and the President was authorised to deal with the work of the Council until the next session.

New Inventions.

MECHANICAL CELL FOR MICROSCOPING CEREBRO-SPINAL FLUIDS.

THIS device makes possible the scrutiny of every cell and bacillus contained in a column of cerebro-spinal fluid 1 cm. in depth.

A cover-glass (not too fragile) is placed at the bottom of the cell (see diagram), which is then filled to the brim with fresh cerebro-spinal fluid. After an hour or two the cells and cocci will have sunk and will be lying evenly on the cover-glass. The milled head is then gently unscrewed; this causes the cell to rise, creating a vacuum beneath it. Provided the screw is air-tight (a trace of vaseline on the thread ensures this), the supernatant fluid falls through the little channels provided into the well below the cell. A few more turns of the screw detaches the cell from its base, and if it is then placed in front of the fire its wall will drop, leaving the cover-glass on a little altar of brass, where it quickly dries. The ordinary routine is then followed. In staining no heat should be applied lest some cells be washed off.



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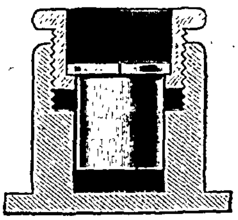

SECTION

In collecting the fluid the first blood-stained portion should be rejected. If the cerebro-spinal pressure exceeds 12 inches by my cerebro-spinal manometer (Messrs. Allen and Hanburys), meningitis or tumour or abscess is almost certainly present. Even if the cells are not counted, by the regular use of this apparatus an accurate quantitative impression of the number of cells is obtained.

The apparatus is specially useful in cases where tubercle bacilli are, or may be, present; for in tuberculous meningitis a spider-web clot often forms which entangles the tubercle bacilli, and an attempt to spread out this clot thinly inevitably ravels it up into a tangled mass which cannot be scrutinised microscopically. If the cerebro-spinal fluid looks turbid to the naked eye, it will need dilution before using the instrument.

Messrs. Allen and Hanburys supply the instrument not only as figured above, but also the earlier model, shown at the Neurological Society, of which the design and action are more self-evident.

My thanks are due to Mr. F. M. C. Lewis for the excellent design.

FRANK C. EVE, B.A., M.D. Camb.,
F.R.C.P. Lond.

Hull.

THE LANCET.

LONDON: SATURDAY, JUNE 19, 1920.

Hospital Sunday, June 27th, 1920.

THE annual collection of the Metropolitan Hospital Sunday Fund will take place on Sunday, June 27th. It is not necessary to press the urgency of its appeal upon our readers, for they are fully aware of the conditions of narrow margins, of debt, and of mendicancy under which the voluntary hospitals are carrying on their work. The general public is equally alive to the position, the closure at the National Hospital for Paralysis and the threat of similar disaster at the London Hospital only putting accents upon a familiar text. Alas! the familiarity of the text is a source of weakness, not of strength, and we beg our readers not to assume that an evil because of its long life is necessarily eternal, and that the aggravation of an evil is no measure of its incurability. All know what the situation is in which the hospitals find themselves, and upon its causes there is no need to dwell. The ordinary householder and the members of his household are not likely to forget the risen and rising price of the necessaries of life, and the daily difficulty felt by many in trying to make both ends meet. We cannot ignore that difficulty, but we ask that it should not close any purses to the hospitals, but rather that it may stimulate sympathy. The anxiety which oppresses the hospitals weighs in like manner on those responsible for the care of the helpless sick and disabled, and it is to the sympathy of persons able to appreciate the situation that appeal can be made with greater assurance. And if the hospitals, through the stress of the times in which we live, lose perforce some of their old patrons, they should gain new ones, on whose ears the claims of generosity must fall loudly. There are newly rich as well as newly poor. The war, and the manufacturing and commercial enterprises which it brought into being, have left many to whom high prices do not make as much daily difference as to their neighbours. Those richer in 1920 than they were in 1914 are sometimes reproached with the fact. The needs of the voluntary hospitals offer a splendid opportunity to show that such obloquy is undeserved. The new rich can prove that in the struggle to become wealthier they have not forgotten the days when they were poorer, and that they are able to feel for those who in the humbler classes of the community can only find relief in the hospitals when struck down by serious physical disability. It has been said that old names have passed out of the lists of subscribers to hospitals through death and the circumstances produced by the war, and that the names of those who are now for the first time able to give freely in charity have not taken the place of these worthy predecessors. That is a serious charge against men and women whose freshly acquired wealth must almost inevitably place them in positions of influence in the community. They are called upon to set an example to others, and an example of generous charity has ever been one which has had wide influence for good.

On Hospital Sunday the appeal is for the worthiest object that any man's charity can have. Money is asked for to save from death and to restore to health those who without the aid of the hospitals would have to meet the grim alternative of dying and leaving their families to face the world unprotected. It is to be given without expectation of repayment, but it need not be forgotten that the generous giver may some day have his reward. In his hour of need, for himself or for his wife or child, he may require the help of the highest medical or surgical skill. It will be knowledge acquired in the wards of a hospital which will come to his aid; it will be science developed in the various departments of a hospital which he has helped to maintain that will enable his disease to be traced to its source and combated. The working classes will surely appreciate these facts, and we take this opportunity of recording their increasing support of the voluntary hospitals. But while no one denies that some sections of the working classes have profited more than most of their fellow subjects by the war, and that the general higher wages may allow of a better scale of living among these than they enjoyed before, do not let us forget that their margin, with increased prices, is small, and that the raised conditions are not only their right, but necessary to the improvement of public health, which, God knows, called loudly enough for it. We are a long way from eliminating poverty from our midst. We are a long way from possessing a working class able to pay for such aid as the hospitals can give, even though workers may be more prosperous than their forefathers were in the days when the hospitals were founded. The question of State control is not here under discussion; on this occasion we are speaking in behalf of that grand voluntary system, the supporting and supplementing of which is, we know from the best authority, the design of the Government and an integral feature of future legislation. The Report of the Consultative Council on Medical and Allied Services to the Ministry of Health indicates the direction of medical thought and intention, while the endorsement of the ideals contained in that document by the public press shows that the medical view and the popular view are one in intention. The voluntary hospitals are essential to our society, and their needs are public needs, as much to be met out of public generosity as out of taxes and rates.

The present situation of the voluntary hospitals of the metropolis is a terribly anxious one. Their financial position is serious, but not desperate. The war has crippled them as it has crippled many of those who used to help them freely, but they can point to their record in the war with pride and claim from all classes a double measure of support in difficulties greater than those which they have faced before. Hospital Sunday brings an opportunity to all. It is primarily the day on which those give who attend religious worship where collections are made, but it is not necessary to hold back from contributing because the collecting box is not rattled in the streets. Only let those who have the Metropolitan Hospital Sunday Fund brought to their notice in church or chapel not forget to press its claims upon others who are absent; and let those who have not given before initiate an annual custom with a substantial donation. Ten years ago we should have looked upon a collection of £100,000 as a record on which the public could be congratulated. If double that amount were to be recorded for 1920 it would still be inadequate when the change of conditions is considered. It is not the "usual amount" that all are urged to give. Let them double or treble it. And above all let no one hang back because of recent melancholy cries that the voluntary system is doomed. It has received, as a matter of fact, a new lease of life by being found to be a necessary part, even a nucleus, of the immense developments that are projected.

The Diagnosis, Prognosis, and Treatment of Nephritis.

It has been somewhat of a reproach to medicine that until recently the investigation of surgical diseases of the kidneys has been more scientific, more efficient, and more practical than that of the strictly medical diseases of these organs, with the result that surgical diagnosis and treatment have been more satisfactory and more successful. This has been largely due to the fact that tests for renal efficiency have been developed by surgical urologists for the express purpose of differentiating bilateral from unilateral disease, and for determining the affected side in the latter case and the efficiency of the remaining kidney. On the medical side much attention has been paid to the quantity and composition of the urine and the presence of albumin and casts, but it is only recently that the question of renal efficiency has been investigated in these cases. Much useful work has now been done on these lines which has not yet reached the text-books, and being still only to be found in monographs and papers in various medical journals, it remains outside the ordinary routine of medical procedure. We publish in this week's issue of The Lancet an interesting and important paper by Dr. H. MacLean and Dr. A. E. Russell, which we commend to the notice of our readers, since it not only gives a review of some reliable methods for investigation of the various aspects of the renal functions, but also contains practical and explicit details of their application and use. Incidentally it affords most valuable data in regard to diagnosis, prognosis, and treatment, which should be of the greatest help to the practitioner.

At the outset Dr. MacLean and Dr. Russell point out that the specific functions of the kidneys known to physiology comprise three different processes—the elimination of the waste nitrogenous products of metabolism, the removal of acid products, and the maintenance of the necessary concentration of salts in the fluids and tissues of the body. It is a point of great interest to note that these functions are variously involved in the different forms of nephritis. In severe cases of chronic interstitial nephritis there is a definite retention of nitrogenous waste products in the blood, with a diminution of the acid-excreting function. On the other hand, in parenchymatous nephritis there is no evidence of any retention of nitrogenous bodies in the blood or of any failure in acid elimination, but there is usually inability to excrete the normal amount of salt. The bearing of these observations upon the clinical and chemical phenomena of the two varieties of nephritis is developed clearly by the authors. The retention of urea and other nitrogenous products in the blood due to defective elimination in cases of chronic interstitial nephritis can easily be demonstrated, and the urea in the blood estimated. The absence of any defect in the function of the kidney dealing with salt explains the practical absence of œdema in this form of nephritis. In parenchymatous nephritis, on the other hand, the chief difficulty appears to be in the excretion of the necessary amount of salt, and as an inevitable result there is a retention of water leading to œdema, which, together with albuminuria, is the characteristic feature of this form of the disease. In the investigation of cases Dr. MacLean and Dr. Russell recommend the use of salicyl-sulphonic acid as the best and simplest test for protein in the urine. They give directions for the examination of casts, but point out that the variations they show are not necessarily of much value in assessing the degree of renal inefficiency. For this purpose they bring forward three tests—the estimation of urea in the blood, to which reference has already been made; the new "urea concentration test" of MacLean and de Wesselow; and the estimation of the diastatic activity of urine, often referred to as the urinary diastase test. The second of these is strongly recommended by the writers of the paper on account of its simplicity and reliability, and since it has been used in nearly 3000 cases their opinion must necessarily be of great weight. The test involves no more complicated procedure than the administration of 15 g. of urea dissolved in about 100 c.cm. of flavoured water, and the estimation of the urea in samples of urine passed one hour, two hours, and occasionally three hours afterwards. Obviously it does not demand either much time or a difficult technique, and it can easily be made a routine procedure in the investigation of cases of renal disease where necessary. The diastase test also involves no very difficult procedure, but to be accurate requires a sample of the 24 hours' urine. Dr. MacLean and Dr. Russell find a combination of the three tests very useful. We are glad to notice that they insist on the necessity of due correlation of the data so obtained with the results of a thorough clinical examination.

As affording some definite measure of renal efficiency, and indicating which of the kidney functions are involved, these tests afford valuable aid in prognosis and in treatment; it is not too much to hope that when the methods have been more widely applied and more fully developed some progress will be made towards a scientific classification of cases of nephritis, for those at present current are partly clinical, partly pathological, and all admittedly unsatisfactory. Dr. MacLean and Dr. Russell give the normal figures obtained with the three tests they recommend, and indicate the departures therefrom which are to be regarded as of grave significance. They state that only one-fourth to one-sixth of the total kidney substance is really necessary to carry out the body needs, and, further, that it is only when the kidney efficiency is reduced to one-fourth or less of its original value that there is any tendency for urea to be retained in excess in the blood. In the light of their researches they have also examined the recent suggestion of Epstein to give a liberal protein diet to cases of parenchymatous nephritis with marked dropsy. They have found that the disappearance of the dropsy which frequently occurs after this diet is always associated with an increase in the blood urea. They therefore suggest that the increased excretion of urine is due to the diuretic action of this urea, and in support of this they find that large doses of urea given to such patients also lead to a disappearance of the dropsy. They are of opinion that the new forms of treatment may enable such patients to survive the dangerous dropsical stage of parenchymatous nephritis and pass into the less distressing chronic interstitial stage. Here they allow that limitation of protein intake may be beneficial, but they strongly deprecate the very low diet to which these patients are often condemned. The paper as a whole teems with practical suggestions and will be of great service to the practitioner who wishes to diagnose and treat his cases of renal disease on sound and scientific lines. It marks a notable advance in our knowledge of certain difficult and distressing diseases.

The Research Defence Society.

THE annual general meeting of the Research Defence Society will be held next Wednesday at 11, Chandos-street, the house of the Medical Society of London, when the chair will be taken by Lord LAMINGTON, the President. Lord KNUTSFORD, the Chairman of Committee, will submit the annual report. That report will show great activity on the part of the Society, and the Chairman, with characteristic humour, suggests that any fall away in the amount of work done before the war may be attributed partly at least to "the prevalent indifference towards our opponents." With regard to that we wish to lay stress upon a point, taken up also by Lord KNUTSFORD, that the Research Defence Society has to reckon with a wider sort of attack from those hostile to research than marked the earlier campaigns. Resistance to experimentation on animals no longer marks the scope of their blindness alike to facts and to the calls of real humanity. The protective treatments, founded on and emerging from such experimentation, are all in the near future likely to be impeded in their beneficial influence by the opponents of the applications of physiology to therapeutics. The admirable address by Sir WALTER FLETCHER on the work of the Research Defence Society, which we noticed in these columns a fortnight ago, shows well that the Society has before it a great task to educate the ignorant, appease the fanatic, and convince the reasonable man. Sir DAVID FERRIER is the honorary treasurer of the Research Defence Society; Mr. STEPHEN PAGET is the honorary secretary, assisted by Captain W. E. ELLIOT, a medical Member of Parliament; and all communications should be addressed to 11, Chandos-street, Cavendish-square, London, W. 1. Money is needed.

UNIVERSITY OF LONDON.—The Senate has resolved to institute a diploma in psychological medicine which shall be open to all registered medical practitioners. The standard in psychological medicine required for the purpose of the proposed diploma will be approximately that required by the University of Cambridge for its diploma in psychological medicine.

GIFT TO BELFAST HOSPITAL.—Mr. George L. Moore, of Forest Hill, formerly in practice as a solicitor at Belfast, has intimated his intention of making a gift of £20,000 to the Royal Victoria Hospital, Belfast, in grants of not less than £1000 every year. A scheme is being formulated for the establishment of a ward to be called the "Moore Ward."

Annotations.

"Ne quid nimis."

A MEMORIAL TO VICTOR HORSLEY.

A MOVEMENT has recently been initiated by friends and former colleagues of the late Sir Victor Horsley towards some form of permanent recognition of his services to medical science, and a preliminary letter appealing for subscriptions to this end has appeared in the daily press. The endowment of a Victor Horsley lectureship has been suggested as a suitable memorial, and the Senate of the University of London as its most appropriate trustees; the exact form of its scope and constitution will be decided by a committee of which the officers are Sir Charles Ballance, chairman, Sir Arbuthnot Lane and Dr. E. J. Domville, joint honorary secretaries, and Sir Frederick Mott and Dr. H. H. Tooth, joint treasurers. The present idea is the foundation of an annual lecture, the subject of which should not be confined to medicine, while it may be delivered by any prominent man in any field of progress. Sir Victor Horsley's death from heat-stroke in Mesopotamia is so recent, and his personality was so forcible, that it would be superfluous to recapitulate in any detail the long list of his activities or to recall the brilliance of his career. It will be remembered that the connexion between myxœdema and athyroidism—long a commonplace of the text-book—was first established by Horsley by means of experimental work on monkeys at the Brown Institute. Here he also carried out extensive researches on rabies. As professor of pathology at University College he developed his bent for experimental research in physiopathology; and when, as surgeon to the National Hospital for Diseases of the Nervous System, he met again his old friend Charles Beevor (who, as house physician, had taught him the rudiments of medicine) together they mapped out the motor area of the orang. Their work, published in the Proceedings of the Royal Society, 1886–7–8, in delimiting the cortical motor areas was for many years the standard reference on the subject. In the surgery of the brain and spinal cord Horsley soon became undisputed leader, and, to quote only one of his specialties, his method of performing the Hartley-Krause operation for extirpation of the Gasserian ganglion brought him much fame. One of his latest discoveries was the recognition of loculated spinal meningeal cysts as a cause of paraplegia, and their operative treatment.

Horsley was a born fighter. And his love of the struggle did not always help his cause. He was a most successful champion of freedom for the physiologist in the cause of research, but the enthusiasm which led him ever to consider his own side right was not in other directions so successful. Therefore wide recognition of his splendid ideals is called for now that he is gone. In his later years he turned to medical politics, being elected as a Direct Representative to the General Medical Council in 1897, and remaining a member till 1907. He did admirable work, but his contentiousness sometimes impeded business. He also took a prominent share in inspiring the policy of the British Medical Association, as represented by the present Articles. His aspirations towards Parliament never materialised, though he held strong political views; but it is difficult to imagine his ever serving under a party chief. He was a man of extreme and tireless energy, at play as well as at work; at his own shooting parties he would walk all his guests off their feet. But more than all sport in any field, he loved his work in the laboratory. Though somewhat critical of the efforts of his colleagues, his generosity to his juniors was amazing; he would spend an incredible amount of time and money in helping a younger man in experimental work, and in encouraging his investigations. His own surgical technique was superb. The son of a Royal Academician, he was no mean draughtsman, and was unusual in being almost ambidextrous with pencil, pen, or scalpel. His optimistic manner inspired the greatest possible confidence in his patients. The man was like a diamond of many brilliant facets—small wonder that their cutting edge occasionally scratched and scarred those with whom he came into conflict. No other medical man of his time was associated with such diverse movements down so many streams of public life. None of the crafts piloted by him ran the slower for his intervention; in fact, he rejoiced in steering them near the rapids, and if necessary through the rapids. There should be no difficulty in obtaining the requisite support to any testimonial to his memory. Among those anxious to be represented will be his scientific colleagues, the Fellows of the Royal Society and of the Royal College of Surgeons of England; his personal friends, and even his personal enemies, who for the most part recognised his sincerity; those women who remember his help in the struggle for political and educational franchise and their younger sisters, more especially those whose admission as medical students to University College Hospital, he did not live to see; and, lastly, members of University College Medical School, from his colleagues to his dressers, who will be proud to perpetuate the memory of a worker who brought so much fame to their school, and who would have rejoiced so heartily in its present magnificent opportunities for development.

APPARENT PULSUS PARADOXUS.

IN pulsus paradoxus the normal increased rapidity of the pulse during deep inspiration is replaced by slowing; the cardiac contractions are correspondingly slowed. In the *Boston Medical and Surgical Journal* of May 20th Dr. Paul D. White has reported an interesting case in which the pace-maker of the heart and the auricles acted normally during inspiration—that is, responded by increased rate—but heart-block was also produced, which led to slowing of the ventricles and therefore of the pulse, simulating pulsus paradoxus. The patient, a soldier, aged 23 years, was admitted to a base hospital on Nov. 10th, 1918, with influenza. There was a history of severe double pneumonia at the age of 5 years, since which time his pulse had always been slow. He said that the fact that his pulse got slower on excitement or exertion had been noted for years. He had suffered from typhoid fever five years ago. Examination showed that he was convalescing from influenza. Polygrams were taken as follows:—

	Auricular rate.	Ventricular rate.
Quiet in bed	43	43
Quiet in bed (later)	40	40
During deep inspiration ...	70	35
Deep expiration	41	41
Immediately after moderate exertion	72	36

The tracings showed that on deep inspiration there were two auricular contractions to one ventricular—a 2 : 1 heart-block. Evidently the auriculo-ventricular bundle was damaged, probably by the disease in childhood, and when the auricular rate rose above a certain level failed to transmit every other impulse. The pace-maker of the heart responded normally to exertion and inspiration by increased rate, but as this was halved in the ventricles their rate actually fell, simulating pulsus paradoxus. During the slow rate of the heart auriculo-ventricular conduction was normal. The slow rate of the pace-maker under ordinary circumstances is noteworthy. Was this due to the disease of childhood affecting the auricle, or did the impaired conductivity of the auriculo-ventricular bundle in some way affect the pace-maker, causing it to settle down to a rate which the bundle was capable of conducting? Volhard[1] has described a similar paradoxical response to change of position. While lying flat the patient had a pulse of 64 and no block; sitting up he had a pulse of 42 with a 2 : 1 block, the auricular rate being 84; on standing the pulse dropped to 22 and became irregular, due to varying degrees of block from 2 : 1 to 5 : 1. Atropin slightly increased the dissociation by increasing the auricular rate, with which the ventricles could not keep pace. Lutembacher has reported a case of "orthostatic bradycardia due to intermittence of conduction of the bundle of His."[2] With an auricular rate of 60 there was no block; at 70 to 80 a 2 : 1 block; and with higher auricular rates 3 : 1 and 4 : 1 blocks.

THE GIFT FROM THE ROCKEFELLER FOUNDATION TO UNIVERSITY COLLEGE HOSPITAL AND MEDICAL SCHOOL.

THE simple facts of the benefaction to University College Hospital and School have been obscured by so much appreciative comment that we propose to set them out baldly. The figures are in themselves sufficiently impressive. The total sum offered is just under £1,205,000—£835,000 to the University College Hospital and Medical School and £369,800 to the University of London on behalf of University College. Of the former sum £400,000 is to be allocated to the building and equipment of a nurses' home, residents' quarters, obstetrical and bio-chemical departments, and the reconstruction of certain existing buildings. The income from the remaining £435,000 will be devoted to the medical, surgical, and obstetric units, to salaries in the departments of bio-chemistry and pathology, and towards the maintenance of beds in the reconstructed hospital wing. The gift to University College is to be applied to the erection of an anatomical institute and to its maintenance. It is estimated that the increased cost entailed on the hospital and medical school, the provision of which is understood to be an implied condition of the benefaction, will amount to, roughly, £20,000 a year. These are the bare facts. The scale of the benefaction is unique in this country, and our appreciation of the honour to one of the most progressive of the London medical schools is not the less because we reserve a detailed discussion until we have been able to study the terms more closely. Such generosity from another country in the cause of scientific research is somewhat humiliating; it is a measure of the neglect of medical education in the past that the benefaction has evoked such widespread notice. King Edward's Hospital Fund has administered larger sums for charitable purposes without so greatly surprising the people. Had the present gift been distributed over all the medical schools in London it would have been less impressive, and certainly less stimulating; had it been offered exclusively for purposes of research or of teaching it would have been less interesting. But the gift is to be regarded primarily as a tribute to the recent attempt at combining research with training. The clinical unit system, initiated by the Board of Education and carried out at University College Hospital in response to official suggestion, was the innovation which first attracted the notice of the two representatives of the Rockefeller Foundation, and it is to its adoption by University College Hospital that the gift is mainly due.

THE MANIFOLD USES OF RUBBER.

THERE is evidently plenty of rubber available now, judging from the offer of substantial money prizes by the Rubber Growers Association as an award for suggestions as to extending the present uses or for encouraging new uses of this singularly resilient material. Incidentally, this should be good news for scientific research, as rubber is, of course, a great adjunct in the laboratories, while also it is an indispensable servant in medicine and in surgery. The offer, however, probably refers to wider uses, for the relative value of suggestions which are deemed practical will, we understand, depend upon the quantity of raw rubber the adoption of these suggestions would absorb, and special considerations, it is announced, will be given to practical suggestions likely to utilise rubber in *large* quantities. (The italics are not ours, but appear in the conditions laid down by the Association.) Our interest, however, lies in the fact that the offer, generally speaking, should mean that rubber is going to be readily obtainable and at a relatively moderate cost, and an ample supply of the material will obviously be a gain to medical science in general. It will be remembered that at one time during the war good rubber was practically unobtainable. There is one thing in regard to rubber, which we hope our rubber producers will give their attention to, and that is its inclination with age to lose its flexible qualities. An old rubber tube, if it has not been constantly used, will frequently be found brittle and full of cracks, and therefore useless for its special purpose. If its flexibility and resiliency could be made permanent the material would be of much greater value. That consideration apart, something is almost bound to come out of this interesting offer, considering the infinity of the applications of rubber, particularly if it should prove that the world's production is such as to make it a cheaper commodity. The assumption arises out of this appeal to the brains of the public to find a bigger outlet for its uses. Improvements in the vulcanising of rubber are announced this week, for which the claim is made that by simplifying the process ways are opened up for new and extensive applications of the material.

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[1] Deutsch. Arch. f. klin. Med., 1909, xcvii., 348.

[2] Archives des Maladies du Cœur, 1919, xii., 145.

A CASE OF LUPUS IN AN ARMY PENSIONER.

A FEW days ago the Minister of Pensions was asked in the House of Commons why treatment had been refused to a private of the Scots Fusiliers suffering from lupus. The recruit had joined voluntarily in 1915 and then was in perfect health, and was passed fit for general service by three separate medical boards. Owing to undue exposure he was sent into hospital with "acute myalgia," and while there lupus developed at the back of one ear. In 1916 he was discharged as totally unfit for service. He was treated at Manchester for lupus, when the treatment was approved and authorised by the Ministry of Pensions. Treatment was continued until last September, when the patient was informed that the Ministry of Pensions did not accept responsibility for lupus and that the treatment was not authorised. Inquiries are being made into the case. If we accept the facts as stated, then it appears clear that the lupus appeared while the patient was in the army, for we may take it that he had no sign of this disease when he was first examined. We are told that he suffered much exposure, and it can hardly be doubted that his service was directly responsible for the appearance of the disease. It is well recognised that the reason that lupus appears very commonly on the nose, cheeks, and ears is due to the fact that these parts are subjected to great variations of temperature from their exposed position and slight blood-supply, and therefore the exposure to which this patient was subjected should be held responsible for the disease. Investigation may show that the facts are not as they were stated, but if the Member who asked the question was correctly informed, we think that the Ministry of Pensions will be acting without the sanction of medical knowledge in disclaiming responsibility.

CONGENITAL STENOSIS OF BOTH URETERAL ORIFICES.

Dr. Isabel M. Wason,[1] writing from the Brady Laboratory of Pathology and Bacteriology of the Yale University School of Medicine, reports the following unusual case. A poorly nourished male infant, aged 7 months, was admitted to hospital for diarrhœa. Physical examination was negative. Death took place 14 days after admission. The autopsy showed double hydronephrosis with dilated tortuous ureters, which ended in cystic dilatations in the small vesical cavity. The ureteral orifices were not visible to the naked eye, but in serial sections they were found to be stenotic and to measure ¼ to ⅛ mm. in diameter. There was also a valve in the prostatic urethra extending from the lower end of the verumontanum to the right urethral wall. In her commentary on the case Dr. Wason states that the presence of a valve formation in the lower prostatic urethra is probably the commonest cause of double hydronephrosis in children. Such an obstruction is usually bilateral, and the urine can only pass through a narrow slit. This gives rise to dilatation of the urethra above this point, dilatation and hypertrophy of the bladder, dilatation of both ureters, and double hydronephrosis. In the present case, however, the valve was found on one side only and did not cause sufficient obstruction to the passage of urine to produce dilatation of the upper prostatic urethra and of the bladder. The dilatation of the ureters and renal pelves was, therefore, not due to the prostatic valve, but to the stenosis of the ureteral orifices, which was possibly caused by a partial overgrowth of epithelium and muscle in embryonic life. Congenital stenosis with cystic dilatation of the vesical end of one ureter is unusual, but to find the condition present to the same extent in both ureters, as was exemplified in Dr. Wason's case, is extremely rare.

THE POSITION OF VETERINARY SCIENCE.

THE Veterinary Surgeons Act (1881) Amendment Bill was read a third time on June 11th, and it seems quite probable that the Bill will pass into law. For some time now there has been a lack of funds available for the Royal College of Veterinary Surgeons to enable it to carry out its statutory duties and to improve veterinary education. The chief object of the Bill is to remedy this situation, and to this end it provides for the compulsory annual payment of 1 guinea by all members of the College who are in active practice in the United Kingdom. The Bill also gives status to the practitioners who were registered under the Act of 1881, and makes them amenable to the discipline of the profession, while it also provides that companies shall not infringe the Act of 1881. Much controversy has arisen about the status of veterinary science in this country, and many educationalists think that great benefit would accrue to the scientific status of the profession through a provision at all universities for the granting of veterinary degrees. But the practical value of a university degree would depend on the facilities existing in a university for the imparting of veterinary instruction. It would only be by a slow and gradual process that these facilities could be obtained, and then if there was not sufficient demand for university veterinary degrees the innovation would be a barren one. The profession only numbers about 3000 all told. It is only a small one, and the prizes securable in it are not likely to cause a great rush of intellectuals to seek entry into its ranks. At the present time two universities grant three veterinary degrees. The Liverpool University grants the degrees of D.V.H. (Diploma in Veterinary Hygiene) and D.V.Sc. (Doctor in Veterinary Science), and the Victoria University, Manchester, grants the D.V.S.M. (Diploma in Veterinary State Medicine), whilst the University of London grants facilities for the taking of the B.Sc. degree concurrently with the M.R.C.V.S. diploma. The real advancement of veterinary science can only follow an educational campaign in the whole realm of animal breeding and rearing. The difficulty is to get the zeal for the benefits of science into the hearts of the workers among animals. Appalling ignorance abounds and sheer laziness increases every day. In quite recent times we have heard of such mediæval enormities being committed as these:—human fæces put on to a festering sore to enable it to heal, a red herring tied to a cow's tail with the object of making it rise, and a sliced raw onion put into a mare's vagina to cure colic. The simple lessons of hygiene in many cases are not known, and even where known in perhaps over 60 per cent. of cases they are not practised. To procure any real advance in veterinary science disease-prevention work by veterinarians needs preceding by a decade or two of disease-prevention instruction and work by stock attendants, stock owners, farmers, dairymen, and agricultural and town landlords. The whole question is one of education, finance, and zeal for hygiene. How long will it take to bring these things up to a really effective pitch? At present the good food that veterinary science provides is not half assimilated by those for whom it is intended, and any culinary refinements will be thrown away or wasted.

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[1] Journal of Urology, April, 1920.

BRITISH MEDICAL ASSOCIATION:

PROGRAMME OF ANNUAL MEETING.

THE eighty-eighth annual meeting of the Association will be held at Cambridge, under the Presidency of Sir T. Clifford Allbutt, Regius Professor of Physic in the University, who will deliver his address on Tuesday, June 29th, preceding the sectional proceedings.

The Representative Meeting will begin in the Examination Halls on Friday, June 25th, at 10 A.M., and the statutory annual general meeting will be held at the Examination Halls on Tuesday, June 29th, at 2 P.M.

The annual dinner will be held in the Hall of St. John's College at 8 P.M., on Thursday, July 1st. The popular lecture will be given by Dr. G. S. Graham-Smith, F.R.S., on "Flies" at 8.30 P.M. on Friday, July 2nd.

DEMONSTRATIONS.

Laboratory and clinical demonstrations will be given on three consecutive days from 2.30 to 4.30 P.M., commencing on Wednesday, June 30th. The directors of demonstrations are:—

Medicine: Dr. Aldren Wright.
Surgery: Mr. Arthur Cooke.
Physiology: Professor J. N. Langley, F.R.S.
Pharmacology: Professor W. E. Dixon, F.R.S.
Neurology: Dr. E. D. Adrian.
Pathology: Professor Sir G. Sims Woodhead.

THE SECTIONS.

The scientific business of the meeting will be conducted in 12 sections, which will meet on the days indicated from 10 A.M. to 1 P.M., the demonstrations following in the afternoons.

Medicine.

President: Sir Humphry D. Rolleston, K.C.B., M.D., F.R.C.P.

Honorary Secretaries: A. J. Jex-Blake, M.D., F.R.C.P. (13, Ennismore-gardens, London, S.W. 7); W. E. Hume, M.D., F.R.C.P. (4, Ellison-place, Newcastle-on-Tyne); E. Lloyd Jones, M.D. (59, Trumpington-street, Cambridge); J. Aldren Wright, M.D., M.R.C.P. (Director of Demonstrations, 2, Corpus-buildings, Cambridge).

June 30th (Morning Session).—Discussion on the Diagnosis of Nervous Disorders of the Stomach and Intestines. To be opened by Dr. A. F. Hurst.

In the afternoon Mr. J. Barcroft will demonstrate Methods of Analysing the Gases of the Blood and Alveolar Air.

July 1st (Morning Session).—Discussion on the Present Position of Vitamines in Clinical Medicine. To be opened by Professor F. Gowland Hopkins.

July 2nd (Morning Session).—Discussion on the Clinical Significance and Course of Subacute Bacterial Endocarditis. To be opened by Sir Thomas Horder.

An exhibition of specimens illustrating the subject of this discussion will be held in the Pathological Museum.

Surgery.

President: Sir George H. Makins, G.C.M.G., C.B., P.R.C.S.

Honorary Secretaries: W. H. Bowen, M.S., F.R.C.S. (24, Lensfield-road, Cambridge); Arthur Cooke, F.R.C.S., Grove Lodge, Cambridge (Demonstration Secretary); G. E. Gask, C.M.G., D.S.O., F.R.C.S. (41, Devonshire-place, London, W. 1); Gordon Taylor, O.B.E., M.S., F.R.C.S. (15, Harley-street, London, W. 1).

June 30th (10 A.M.).—Discussion: Surgical Treatment of Gastric Ulcer. To be opened by Sir Berkeley G. A. Moynihan and Dr. Charles H. Mayo.

July 1st (10 A.M.).—Discussion: Surgical Treatment of Cancer of the Rectum. To be opened by Mr. W. Ernest Miles and Mr. Grey Turner.

Demonstration in the afternoon by Colonel R. H. Elliot on Glaucoma.

July 2nd (10 A.M.).—Discussion: End-Results of Injuries to the Peripheral Nerves treated by Operation. To be opened by Sir William Thorburn and Mr. Percy Sargent.

Demonstrations will be given in the afternoons by Major Meurice Sinclair on the Treatment of Fractures; by Mr. H. D. Gillies and Mr. Percival Cole on Plastic Surgery of the Face; by Mr. Herbert Tilley on Endoscopy of the Lower Air Passages and Gullet; and by Mr. Arthur Cooke on the Technique of Blood Transfusion.

Neurology and Psychiatry.

President: Henry Head, M.D., F.R.S.

Honorary Secretaries: E. D. Adrian, M.D., M.R.C.P. (Trinity College, Cambridge); E. Farquhar Buzzard, M.D., F.R.C.P. (78, Wimpole-street, London, W. 1); George Riddoch, M.D., M.R.C.P. (10, Alba-gardens, Golders Green, London, N.W. 4).

June 30th (Morning Session).—Discussion on the Early Signs of Nervous Disease and their Interpretation. To be opened by Henry Head, M.D., F.R.S.

July 1st (Morning Session).—Discussion on Dementia Præcox and its Relation to other Conditions. To be opened by Bernard Hart, M.D.

July 2nd (Morning Session).—Discussion on Psychotherapy. To be opened by T. A. Ross, M.D.

Demonstrations are being arranged for two afternoons; particulars will be announced later.

Pathology and Bacteriology.

President: Professor J. Lorrain Smith, M.D., F.R.S.

Honorary Secretaries: A. E. Clark-Kennedy, M.R.C.S., L.R.C.P. (Corpus College, Cambridge); A. E. Gow, M.D., F.R.C.P. (37, Queen-Anne-street, London, W. 1); Helen Ingleby, M.D., M.R.C.P. (44, Welbeck-street, London, W. 1).

June 30th.—Atrophy of the Liver. To be opened by Professor Stuart McDonald, M.D., F.R.C.P.

July 1st.—The Present Position of Cancer Research. To be opened by J. A. Murray, M.D.

July 2nd.—The Bacteriology of Cerebro-spinal Meningitis. To be opened by J. A. Arkwright, M.D., F.R.C.P. (A collection of specimens to illustrate the subject under discussion will be available.)

The afternoons will be devoted to meetings of the Pathological Society of Great Britain and Ireland.

Physiology and Pharmacology.

President: Professor F. Gowland Hopkins, M.B., F.R.S.

Honorary Secretaries: D. V. Cow, M.D. (The Bridge House, Great Shelford, Cambridge); Edward Mellanby, M.D. (32, Addison Mansions, Kensington, London, W. 14).

June 30th.—Discussion on Acidosis in Disease. To be opened by Professor F. Gowland Hopkins.

July 1st.—Discussion on the Physiology and Treatment of Denervated Muscle. To be opened by Professor J. N. Langley, F.R.S.

July 2nd.—Discussion on Quinine and its Derivatives. To be opened by Professor W. E. Dixon, F.R.S.

Naval and Military.

President: Colonel Joseph Griffiths, C.M.G., M.D., F.R.C.S.

Honorary Secretaries: Major A. S. M. Macgregor, O.B.E., M.D., R.A.M.C. (T.) (Sanitary Chambers, Glasgow); Major H. B. Roderick, O.B.E., M.Ch., M.D., R.A.M.C. (T.) (17, Trumpington-street, Cambridge); Lieutenant-Colonel F. E. Apthorpe Webb, O.B.E. (Grafton House, Maid's Causeway, Cambridge).

June 30th (10 A.M.).—Discussion on the Army Medical Service and its Relation to the Education and Training of Newly Qualified Medical Men, to be opened by the President. 2.30 P.M.—The Naval, Military, and Air Force Medical Services will exhibit the new inventions and equipments that arose during the Great War. Each department will be fully represented, and each will be in charge of an officer who will be prepared to demonstrate and explain the exhibits.

Obstetrics and Gynæcology.

President: Herbert Williamson, M.B., F.R.C.P.

Honorary Secretaries: Malcolm Donaldson, M.B., F.R.C.S. (145, Harley-street, London, W. 1); W. R. Grove, M.D. (St. Ives, Hunts).

June 30th.—Discussion on Puerperal Sepsis. (1) Mr. Victor Bonney (London): Introductory Paper. (2) Mr. H. Beckwith Whitehouse (Birmingham): Surgical Treatment of Uterus in Puerperal Sepsis. (3) Dr. A. E. Gow (London): Intravenous Protein Therapy in Treatment of Puerperal Septicæmia. (4) Dr. Leith Murray (Liverpool): Use of Serums and Vaccines in the Treatment of Puerperal Sepsis.

July 1st.—At 10 A.M. there will be a joint session with the Section of Electro-therapeutics to discuss the Treatment of Fibroids by X Rays. Opened by Dr. R. Knox.

Dr. R. Mackenzie Wallace will give a demonstration of the Diastase Reaction on Wednesday, followed by a demonstration from Mr. M. S. Mayou on Ophthalmia Neonatorum.

Tropical Medicine.

President: Professor G. H. F. Nuttall, M.D., F.R.S.

Honorary Secretaries: Charles Frederick Searle, M.D. (67, Bridge-street, Cambridge); J. Gordon Thomson, M.B. (24, Herne Hill, London, S.E. 24).

June 30th (Morning Session).—Papers: (1) Problem of Filariasis, by Drs. Stephens and Yorke. (2) Rôle of *F. bancrofti* in the Production of Lymphatic Obstruction and a Consideration of Elephantiasis from the Pathological Standpoint, by Dr. G. C. Low and Dr. P. H. Manson-Bahr. (3) Dietetic Deficiency and Endocrine Activity, with Special Reference to Deficiency Œdemas, by Lieutenant-Colonel Robert McCarrison, I.M.S.

In the afternoon there will be the following demonstrations: (1) Parasitic Worms, by Dr. R. T. Leiper. (2) Exhibition Collection of all known species of Tsetse Flies, with demonstration dealing with the Morphology and Bionomics, by Professor Newstead. (3) Demonstration of the use of the Mobile Laboratory for Malarial Inquiries in England, by Colonel S. P. James. (4) Paintings illustrating the Treatment of Leprosy, by Lieutenant-Colonel Sir Leonard Rogers.

Medical Education.

President: Sir George Newman, K.C.B., M.D., F.R.C.P.

Honorary Secretaries: S. R. Gloyne, M.D. ("Hatherley," Chalfont St. Giles, Bucks); Professor J. Kay Jamieson, M.B. (Dean of Faculty of Medicine, Leeds).

July 1st (10 A.M. to 1 P.M.).—Address by the President. Discussion: Preliminary Scientific Education in the Medical Curriculum. Openers: Professor S. J. Hickson (Biology); Professor Arthur Keith (Anatomy); Professor Sir Ernest Rutherford (Physics); Professor J. Lorrain Smith (Pathology); Professor A. Smithells (Chemistry).

Venereal Diseases.

President: E. B. Turner, F.R.C.S.

Honorary Secretaries: W. H. Harvey, M.D. (The Dene, Great Shelford, Cambridge); Otto May, M.D. (19, Well Walk, Hampstead, London, N.W. 3).

July 1st (10 A.M.).—Discussion on Venereal Diseases in Women and Children: (1) Dr. Morna Rawlins: Treatment of Veneral Disease in Women. (2) Dr. Leonard Findlay: Venereal Diseases in Children.

In the afternoon there will be a clinical demonstration at the Venereal Diseases Clinic, Addenbrooke's Hospital, and a laboratory demonstration in the Medical Schools under the direction of Mr. J. E. Barnard.

The following Sections meet on Friday only:—

Electro-therapeutics.

President: Alfred Ernest Barclay, M.D.

Honorary Secretaries: E. P. Cumberbatch, M.B., M.R.C.P. (15, Upper Wimpole-street, W. 1); F. Shillington Scales, M.D. ("Redcourt," Adams-road, Cambridge).

July 2nd —Presidential address by Dr A E Barclay Place of the Radiologist in Medicine Discussion on the Diagnosis and Treatment of Paralysis caused by Nerve Injury, to be opened by Mr H S Souttar Joint Discussion with Section of Obstetrics and Gynæcology on Treatment of Uterine Fibroids (see above)

Medical Sociology

President G E Haslip, M D

Honorary Secretaries S Morton Mackenzie, M B (9 Rose hill, Dorking) C M Stevenson, M D (90 Chesterton road, Cambridge)

July 2nd (10 A M) —Sir George Newman will open a discussion on the Future of Medical Practice, dealing with the subject from the point of view of the State The discussion will be continued by Sir Wilmot Herringham from the standpoint of the Consultant Dr Alfred Linnell from that of the General Practitioner Professor F Gowland Hopkins from that of Medical Research and Mr E W Morris, C B E , house governor London Hospital from that of the Hospitals

Pathological Museum

Committee Sir German Sims Woodhead, K B E (chairman), Dr L Cobbett, Dr G S Graham Smith Dr W H Harvey, Mr T S P Strangeways, and Dr H B Roderick M Ch (honorary secretary)

The Pathological Museum arranged in connexion with the meeting will occupy a central position in two temporary buildings in the first court of the Medical Schools It is proposed to arrange the material under the following heads (1) Exhibits bearing on discussions and papers in the various Sections (2) Specimens and illustrations relating to any recent research work (3) Individual specimens of special interest or a series illustrating some special subject (4) Instruments or appliances relating to clinical diagnosis and pathological investigation There will also be a series of exhibits illustrative of war specimens, arthritis cerebro spinal meningitis and parasitology So far as practicable each section will be under the charge of a demonstrator, but exhibitors will have an opportunity of demonstrating their own specimens

Communications regarding material for exhibition should be addressed to Dr H B Roderick, at the Surgical Department, Medical School Cambridge

The honorary local secretaries of the meeting are J. F Gaskell, M.D., F.R C P , The Uplands, Great Shelford, near Cambridge, and G. S. Haynes, M.D , 58, Lensfield road, Cambridge. Communications should be addressed to them at the Medical Schools, Cambridge.

AUSTRALIA

(FROM OUR OWN CORRESPONDENT.)

The Increase in the Medical Profession.

AT the final examination for medical degrees in the Sydney University 49 candidates were successful, while 69 failed. In the University of Melbourne 42 succeeded and 24 were rejected. This represents, with passes in Adelaide, an addition to the ranks of the profession of upwards of 100 practitioners. As the population of Australia is little more than stationary beyond a natural increase, it is evident that the supply of medical practitioners is growing out of proportion to any prospects of practice, although at present there are no signs of overcrowding It is, however, significant that in Melbourne two bodies have been formed, the one exclusively surgical and the other medical, whose object, amongst other things, is to conserve the status of the true consultant against the inroads of general practitioners who devote their spare time to special practice. At least it would be well for British graduates to have some definite prospect before looking to Australia as a possible field of work.

The Health of Miners Tuberculosis and Hookworm.

The Federal and State Governments have jointly equipped an institute to inquire into tubercle among the mining population of Bendigo The objects are —

1 To determine the actual number of persons suffering from tuberculosis in Bendigo and district

2 To ascertain the epidemiological factors involved in connexion with the existing infections These factors would include an investigation into the evidence of infection of persons who have been in contact with infected persons, the relation of the spread of the disease to insanitary conditions, the relations of the disease to mining, &c

3 To determine the relative importance of bovine and of human infection in the distribution of the disease in Bendigo

Dr D. G. Robertson has been placed in charge A hookworm inquiry is being conducted at the same time

At Broken Hill the Broken Hill Mine directorate has opened an investigation into the health of the miners and the conditions under which they work (when they do work, which they have not done for very many months). There is a staff of eight medical men, and over 1000 men have already been examined.

University of Sydney.

Professor J. T. Wilson, professor of anatomy, has been appointed Dean of the Medical School in the place of the late Sir T. Anderson Stuart. The future of the chair of physiology was discussed and referred to a subcommittee for consideration

The Recent Appointments at the Melbourne Hospital.

The recent dissatisfaction with two appointments made to the staff of the Melbourne Hospital on the ground that sufficient attention was not given to the fact that other candidates were returned soldiers, has been allowed to drop after much heated talk and protest. The hospital committee has agreed to a resolution that in all future appointments special preference must be given to applicants with overseas service, but this does not create any new position, and was adopted chiefly to save the faces of those who ought to have known that the most careful consideration had been given to this very point by the advisory committee, but still clamoured for the appointments to be reviewed. The appointments made were not disturbed.

Dr. T. P. Dunhill, C.M.G., who is leaving for London by the *Orvieto* on May 5th, was entertained at dinner by the Victorian Branch, B M A., and the Melbourne Medical Association Readers of THE LANCET will remember the exhaustive study, illustrated by unusually good photographs, on the Surgery of Exophthalmic Goitre, by Dr. Dunhill, which appeared in these columns in December, 1917. Dr Dunhill will take up his duties as assistant director of surgery at St Bartholomew's Hospital immediately on arrival in London.

Dr R J. Bull, who has for many years been director of bacteriology in the Melbourne University, has been granted leave, and will visit Europe immediately in order to inform himself at first hand of bacteriological progress and teaching

April 22nd

URBAN VITAL STATISTICS.

(Week ended June 12th, 1920)

English and Welsh Towns —In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 18 million persons, the annual rate of mortality, which had been 13 2, 12 8, and 11 6 in the three preceding weeks, further declined to 11 0 per 1000 In London, with a population of nearly 4½ million persons, the annual death rate was 10 6, or 0 4 per 1000 below that recorded in the previous week, while among the remaining towns the rates ranged from 5 0 in Ealing, 5 2 in Tottenham and in Edmonton, and 6 0 in Wallasey, to 17 2 in Hastings, 17 4 in Blackburn, and 19 6 in Bootle The principal epidemic diseases caused 272 deaths, which corresponded to an annual rate of 0 8 per 1000, and comprised 89 from measles, 70 from infantile diarrhœa, 48 from diphtheria, 46 from whooping-cough, 14 from scarlet fever, and 5 from enteric fever. Measles caused a death rate of 2 2 in Leicester, 2 8 in Walsall, and 3 6 in Swansea The deaths attributed to influenza, which had declined from 216 to 148 in the four preceding weeks, further fell to 86, and included 21 in Sheffield, 13 in London, and 6 in Carlisle There were 1722 cases of diphtheria and 1642 of scarlet fever under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 1747 and 1635 respectively at the end of the previous week, there were also 4 cases of small pox belonging to East Ham, of which 3 were admitted during the week The causes of 28 of the 3770 deaths in the 96 towns were uncertified, of which 8 were registered in Birmingham

Scotch Towns —In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2½ million persons, the annual rate of mortality, which had declined from 18 4 to 13 6 in the five preceding weeks, further fell to 12 7 per 1000 The 291 deaths in Glasgow corresponded to an annual rate of 13 6 per 1000, and included 8 from measles, 7 each from small pox and infantile diarrhœa, 3 from diphtheria, 2 each from scarlet fever and whooping-cough, and 1 from enteric fever The 75 deaths in Edinburgh were equal to a rate of 11 5 per 1000 and included a fatal case each of whooping-cough and infantile diarrhœa

Irish Towns —The 129 deaths in Dublin corresponded to an annual rate of 16 2, or 2 5 per 1000 below that recorded in the previous week, and included 10 from whooping cough, 5 from measles, 4 from infantile diarrhœa, and 1 each from enteric fever, scarlet fever, and diphtheria The 109 deaths in Belfast were equal to a rate of 13 8 per 1000, and included 4 from whooping cough and 1 each from scarlet fever and infantile diarrhœa

VITAL STATISTICS OF LONDON DURING MAY, 1920.

IN the accompanying table will be found summarised statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious disease, it appears that the number of persons reported to be suffering from one or other of the ten diseases notified in the table was equal to an annual rate of 6·3 per 1000 of the population, estimated at 4,358,309 persons; in the three preceding months the rates had been 7·7, 7·1, and 6·7 per 1000. Among the metropolitan boroughs the lowest rates from these diseases last month were recorded in Hammersmith, St. Marylebone, Hampstead, Stoke Newington, the City of London, and Woolwich; and the highest in Fulham, Shoreditch, Bethnal Green, Stepney, Poplar, and Lewisham. The case of small-pox notified during May belonged to Greenwich. The prevalence of scarlet fever was slightly less than in the preceding month; this disease was proportionally most prevalent in Fulham, Shoreditch, Bethnal Green, Stepney, Poplar, and Deptford. The Metropolitan Asylums Hospitals contained 1671 scarlet fever patients at the end of the month, against 2266, 1981, and 1795 at the end of the three preceding months; the weekly admissions averaged 228, against 279, 240, and 223 in the three preceding months. Diphtheria was somewhat less prevalent than in April; the greatest prevalence of this disease was recorded in Fulham, St. Pancras, Holborn, Bethnal Green, Poplar, Battersea, and Lewisham. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 2003, 1964, and 1937 at the end of the three preceding months, numbered 1783 at the end of May; the weekly admissions averaged 214, against 240, 260, and 221 in the three preceding months. The prevalence of enteric fever was somewhat greater than in the preceding month; of the 28 cases notified during the month, 4 belonged to Stepney, 4 to Battersea, 3 to the City of Westminster, 3 to Hackney, 2 to Fulham, 2 to Hampstead, and 2 to Wandsworth. There were 18 cases of enteric fever under treatment in the Metropolitan Asylums Hospitals at the end of the month, against 30, 38, and 29 at the end of the three preceding months; the weekly admissions averaged 3, against 6, 6, and 4 in the three preceding months. Erysipelas was proportionally most prevalent in the City of Westminster, St. Marylebone, Finsbury, Poplar, Southwark, Greenwich, and Lewisham. The 38 cases of puerperal fever included 4 in Fulham, 4 in Islington, and 3 each in Chelsea, Hackney, Poplar, Lambeth, Battersea, and Wandsworth. The 12 cases of cerebro-spinal meningitis included 3 in Southwark and 3 in Battersea. No case of poliomyelitis was notified during the month.

The mortality statistics in the table relate to the deaths of civilians actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided. During the four weeks ended May 29th the deaths of 4145 London residents were registered, equal to an annual rate of 12·4 per 1000; in the three preceding months the rates had been 16·6, 17·6, and 15·4 per 1000. The death-rates ranged last month from 7·6 in Hampstead, 9·4 in Wandsworth, 10·7 in Camberwell, and 11·1 in Hackney, to 13·8 in Stoke Newington, 13·9 in Finsbury, 14·0 in Greenwich, 14·6 in Battersea, 14·8 in Bethnal Green, 14·8 in Stepney, and 23·5 in the City of London. The 4145 deaths from all causes included 350 which were referred to the principal infectious diseases; of these, 115 resulted from measles, 11 from scarlet fever, 67 from diphtheria, 85 from whooping-cough, 7 from enteric fever, and 65 from diarrhœa and enteritis under 2 years of age. No death from any of these diseases was recorded last month in Holborn or the City of London. Among the metropolitan boroughs the lowest death-rates from these diseases were recorded in Chelsea, the City of Westminster, Hampstead, Stoke Newington, and Lewisham; and the highest in St. Pancras, Finsbury, Bethnal Green, Stepney, Bermondsey, and Battersea. The 115 deaths from measles were 52 below the average number in the corresponding period of the five preceding years; this disease was proportionally most prevalent in Paddington, Stepney, Southwark, Bermondsey, Battersea, and Camberwell. The 11 fatal cases of scarlet fever were equal to the average, and included 2 in Islington. The 67 deaths from diphtheria exceeded the average by 28; the greatest proportional mortality from this disease occurred in Hammersmith, Fulham, Hackney, Finsbury, Bethnal Green, and Bermondsey. The 85 fatal cases of whooping-cough were 19 fewer than the average; this disease was proportionally most fatal in St. Pancras, Hackney, Bethnal Green, Poplar, Bermondsey, and Battersea. Seven deaths from enteric fever were registered during the month, against an average of 6; of these deaths, 2 belonged to Hampstead. The 65 fatal cases of infantile diarrhœa were 13 in excess of the average; the greatest proportional mortality from this disease occurred in Kensington, Hammersmith, St. Marylebone, Finsbury, Shoreditch, Stepney, and Southwark. In conclusion, it may be stated that the aggregate mortality in London during May from these principal infectious diseases was 7·7 per cent. below the average in the corresponding period of the five preceding years.

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING MAY, 1920.

(*Specially compiled for* THE LANCET.)

CITIES AND BOROUGHS.	Estimated civil population, 1919.	Notified Cases of Infectious Disease.												Deaths from Principal Infectious Diseases.									Deaths from all causes.	Death-rate per 1000 living.
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.		
LONDON	4,358,309	1	950	886	—	28	—	38	178	12	—	2093	6·3	—	115	11	67	85	7	65	350	1·0	4145	12·4
West Districts:																								
Paddington	143,938	—	20	32	—	1	—	—	6	—	—	59	5·3	—	9	—	3	2	—	1	15	1·4	145	13·1
Kensington	157,886	—	36	27	—	1	—	—	7	—	—	71	5·9	—	3	—	3	1	—	8	15	1·2	152	12·5
Hammersmith ...	130,981	—	10	19	—	—	—	—	2	—	—	31	3·1	—	2	—	4	—	—	4	10	1·0	128	12·7
Fulham	152,543	—	52	47	—	2	—	4	6	—	—	111	9·5	—	2	—	4	2	1	—	9	0·8	140	12·0
Chelsea	60,573	—	16	8	—	—	—	3	2	—	—	29	6·2	—	1	—	1	—	—	—	2	0·4	57	12·3
CityofWestminst'r	127,533	—	31	17	—	3	—	—	7	—	—	58	5·9	—	1	1	—	—	—	—	2	0·2	114	11·7
North Districts:																								
St. Marylebone ...	97,953	—	16	11	—	—	—	2	5	—	—	34	4·5	—	1	1	—	2	—	3	7	0·9	88	11·7
Hampstead	88,012	—	12	11	—	2	—	—	2	—	—	27	4·0	—	—	—	—	—	2	1	3	0·4	51	7·6
St. Pancras	219,434	—	32	57	—	1	—	—	9	1	—	100	5·9	—	6	1	3	11	—	4	25	1·5	214	12·7
Islington...	323,034	—	53	65	—	1	—	4	12	1	—	136	5·5	—	9	2	7	5	—	3	26	1·0	329	13·3
Stoke Newington...	50,954	—	7	10	—	—	—	—	—	—	—	17	4·3	—	—	—	1	—	—	1	2	0·5	54	13·8
Hackney...	216,736	—	48	52	—	3	—	3	10	—	—	116	7·0	—	3	—	7	7	—	3	20	1·2	185	11·1
Central Districts:																								
Holborn	38,156	—	4	15	—	—	—	—	1	1	—	21	7·2	—	—	—	—	—	—	—	—	—	38	13·0
Finsbury...	75,291	—	18	13	—	—	—	—	7	—	—	38	6·6	—	2	1	2	2	—	2	9	1·6	80	13·9
City of London ...	13,893	—	2	2	—	—	—	—	—	—	—	4	3·8	—	—	—	—	—	—	—	—	—	25	23·5
East Districts:																								
Shoreditch	98,134	—	33	20	—	—	—	1	1	—	—	55	7·3	—	—	—	1	2	—	3	6	0·8	96	12·8
Bethnal Green ...	110,085	—	44	29	—	—	—	2	4	1	—	80	9·5	—	2	1	4	5	1	2	15	1·8	125	14·8
Stepney	232,506	—	75	47	—	4	—	2	8	1	—	137	7·7	—	11	—	3	5	1	6	26	1·5	264	14·8
Poplar	153,644	—	46	40	—	1	—	3	8	—	—	98	8·3	—	2	—	3	9	1	2	17	1·4	154	13·1
South Districts:																								
Southwark	179,971	—	26	28	—	—	—	—	16	3	—	73	5·3	—	9	—	—	2	—	5	16	1·2	179	13·0
Bermondsey	124,239	—	22	17	—	—	—	1	5	—	—	45	4·7	—	5	—	3	5	—	3	16	1·7	129	13·5
Lambeth...	282,322	—	73	59	—	—	—	3	13	1	—	149	6·9	—	7	—	2	2	—	3	14	0·6	271	12·5
Battersea	159,316	—	22	49	—	4	—	3	3	3	—	84	6·9	—	10	1	2	7	—	4	24	2·0	178	14·6
Wandsworth... ...	333,693	—	72	67	—	2	—	3	14	—	—	158	6·2	—	11	1	3	3	—	—	18	0·7	241	9·4
Camberwell	273,802	—	63	51	—	—	—	1	6	—	—	121	5·8	—	10	1	6	5	—	1	23	1·1	224	10·7
Deptford...	111,205	—	31	18	—	—	—	2	3	—	—	54	6·3	—	2	1	1	2	—	5	11	1·3	100	11·7
Greenwich	98,484	1	23	11	—	1	—	—	6	—	—	42	5·6	—	2	—	—	3	—	1	6	0·8	106	14·0
Lewisham	167,754	—	40	46	—	1	—	—	11	—	—	98	7·6	—	2	—	3	1	1	—	7	0·5	150	11·7
Woolwich	136,237	—	23	18	—	1	—	1	4	—	—	47	4·5	—	3	—	1	2	—	—	6	0·6	128	12·2
Port of London ...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

Correspondence.

"Audi alteram partem."

PERICARDIAL FRICTION AND CORONARY THROMBOSIS.

To the Editor of THE LANCET.

SIR,—In an annotation in THE LANCET of June 5th (p. 1232) you call attention to transient pericardial friction as a sign of coronary thrombosis, and to six cases reported by Dr. L. W. Gorham, of Albany. You speak of this condition as "almost unrecognised," and "not mentioned in the text-books." Dr. Gorham's cases are very interesting, but it is hardly true that patches of pericarditis at the sites of coronary thrombosis have not been fully recognised in England. If your readers will do me the honour to turn to my work on "Diseases of the Arteries," Vol. II., pp. 460ff, they will find these events discussed at some length. The occasional relation to angina pectoris also is indicated, and suggestions made to explain the occurrence of anginal pains in some cases in which, with coronary thrombosis, there is no pericarditis.

I admit I have not had the good fortune to meet with the considerable pathological proofs which have fallen to the lot of Dr. Gorham, but do not let us in England appear ignorant of the subject.

I am, Sir, yours faithfully,

Cambridge, June 12th, 1920. CLIFFORD ALLBUTT.

WAR ŒDEMA AND EPIDEMIC DROPSY.

To the Editor of THE LANCET.

SIR,—I have read the letter by Dr. J. A. Nixon in THE LANCET of April 24th on the subject of War Œdema and Epidemic Dropsy. I do not consider that any confusion will result from Dr. A. D. Bigland's valuable article on "Œdema as a Symptom in So-called Food-deficiency Diseases"; on the contrary, it gives a very clear and complete account of our present knowledge of the subject. Indeed, Dr. Nixon himself somewhat obscures the issues when he states that "the disease called by Macleod epidemic dropsy, with its itching, burning, and erythema or urticaria which preceded or accompanied the anasarca, was probably ankylostomiasis." In the course of my investigations on the Ætiology of Epidemic Dropsy in India, published in the Scientific Memoirs of the Government of India, Nos. 45 and 49, I obtained no evidence that the disease was ankylostomiasis; on the other hand, the results of my researches pointed definitely to epidemic dropsy, as seen by me in Calcutta and other places in India, being a form of food-deficiency disease. The statement that "this dropsical disease was by no means confined to the impoverished and sickly" proves nothing, because it is necessary to remember in this relation that the diet of well-to-do people, although expensive, may be, from the modern view-point, nutritionally deficient; thus highly polished rice, which is consumed by the richer classes in India, is more costly than the coarser varieties of rice, but, as is now well known, the former is more deficient in vitamines than the latter.

I am, Sir, yours faithfully,

E. D. W. GREIG.

Pasteur Institute of India, Kasauli, May 21st, 1920.

THE STANDARDISATION OF COLOUR PERCEPTION.

To the Editor of THE LANCET.

SIR,—I have read Mr. Herbert Parsons's letter in THE LANCET and have to thank Mr. Percy Dunn for his reply in your last issue. I shall welcome Mr. Parsons's attack on my views, but I hope it will not appear in a lay paper. The editors of different lay papers have received communications depreciating my work, and though none of these have been inserted, in any case I wish to reply through a scientific medium. Mr. Parsons should be the last person to belittle my work, as he is now using my methods after having opposed them long and fiercely. In 1889, as member of the International Code of Signals Committee, I constructed the lantern, which is now the official test of the navy, for the Board of Trade. Opinion at that time, however, was in favour of the wool test and the non-use of colour names. A special committee of the Royal Society was appointed which recommended the wool test. This discredited me for many years. The wool test is now obsolete, as more than 50 per cent. of dangerously colour-blind persons can pass it and a very large percentage of normal-sighted are rejected. Yet in 1912, in a new edition of his book, Mr. Parsons wrote:—

> "The fundamental axiom in colour testing is that no importance should be attached to the naming of colours...... Holmgren's wools are sufficiently good."

This statement was made when nearly the whole world had recognised the inefficiency of the wool test and the necessity for the use of colour names. In the Ophthalmological Section at the British Medical Association meeting at Brighton, 1913, a resolution was proposed condemning the wool test. Mr. Parsons was the sole member who voted against the resolution.

I have for many years whenever a foreign scientist interested in vision has visited me, and has told me that he was going on to one of my opponents, requested him to let me know of any objection made so that I could answer it. In every case on returning he has told me that certain particular people, the same in every case, had nothing good to say of my work, but were quite unable to point out any fact or deduction which was wrong. I naturally look forward to having something to which I can reply.

I am, Sir, yours faithfully,

London, June 12th, 1920. F. W. EDRIDGE-GREEN.

To the Editor of THE LANCET.

SIR,—Mr. Percy Dunn's saeva indignatio has led him into making some rhetorical exaggerations. "The 100 per cent. of those who have failed to prove that any of his statements are wrong" is one such. The following is an example refuting this pronouncement. Lord Rayleigh stated that he could distinguish between the wave-lengths included in a monochromatic division to the extent of discriminating between the colours of the two D lines.[1] Dr. Edridge-Green traversed this statement and attributed the error to "the admixture of small quantities of white and coloured light and to certain physiological influences."[2] Dr. Wm. Watson conclusively disproved any such influence of admixture with white light,[3] and found that 14 observers gave the following mean values with sodium light: width of monochromatic patch = 4·5 $\mu\mu$; difference in wave-length easily detected as a change in hue = 1·4 $\mu\mu$. It is further to be remembered that there is a wealth of argument against some of Dr. Edridge-Green's theories, so that opponents may not have felt it necessary to controvert them. Thus, I know of, at any rate, one scientist whom Dr. Edridge-Green claims as a strong adherent, who yet dissents entirely from his theory as to the action of the visual purple.

With regard to the "prejudicial attitude" assumed against Dr. Edridge-Green, this, if true—and I believe it originated in events occurring before I became actively interested in the subject—was a personal matter and does not affect the scientific arguments. I have yet to be convinced that the Royal Society was so influenced as to commit the worst crime against science—that of perverting scientific truth from ulterior motives.

I have already said that I consider Dr. Edridge-Green's colour perception lantern good, and it is not surprising, for reasons stated in my last letter among others, that various Government departments have adopted it. I fail to follow Mr. Dunn's arguments that a test requiring skilled knowledge is better than one more "fool-proof." Would a test for visual acuity be better if a high degree of special training were required to use it? That depends, I take it, upon the degree of accuracy required for the given purpose. I must confess that I cannot interpret the innuendo contained in the last sentence of Mr. Dunn's letter.

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[1] *Proc. Roy. Soc. B.*, 1910, vol. lxxxii., p. 458.

[2] Ibid., 1911, vol. lxxxiv., p. 116.

[3] Ibid., 1911, vol. lxxxiv., p. 118.

I am, Sir, yours faithfully,
J. HERBERT PARSONS.

Queen Anne-street, Cavendish-square, W., June 14th, 1920.

POISONING BY EXHAUST GAS.

To the Editor of THE LANCET.

SIR,—On May 8th I was called to see two children, aged respectively 11 and 6 years, with the following history:—

They started to drive 10½ miles in a half-covered business car, open to the front, which contained groceries. They were inside the car, the mother sitting on the front seat by the driver. When they had driven 10 miles the mother heard one of the children crying; she got down and found the younger child delirious, with her head fallen forward; the elder child was trying to comfort the younger one. She got them out of the car, when the elder child staggered about the road and fell down. She put them on the seat by the driver and came on to Lichfield.

I found them both in a state of semi-collapse. Pulse small and feeble. Faces pale. No cyanosis. They were constantly sick, which ultimately became bilious in character. In the evening the elder child complained of headache. The younger child was better, but developed a croupy cough during the night, with no physical signs and no infection of the fauces. The next day they were better and taking food, but the elder child was feeble and wanted to lie down when she was dressed. They went home in the afternoon, and I am told that the cough in the younger child continued for three or four days. They ultimately got quite well.

No. 3 spirit was being used in the car, the exhaust pipe of which only reached half-way to the bottom of the car. What was the gas which caused these symptoms? Does No. 3 spirit contain benzol, which, I believe, contains toluol and xylol? Was it a case of toluol poisoning?—I am, Sir, yours faithfully,

Lichfield, Staffordshire. GEORGE W. HOMAN.

⁂ Cases of serious disturbance to health by the inhalation of light hydrocarbons, used as propellants of motor vehicles, are well known, but the above letter raises the question whether, in the circumstances described, the poisoning was due to leakage of hydrocarbons or to the products of their complete or incomplete combustion. The symptoms described are in accord with those produced by benzene inhalation (or petrol itself), and toluene vapours (methyl-benzene) act much in the same way as benzene. References to similar occurrences will be found in issues of THE LANCET dated April 5th, 1913 (p. 975), Jan. 27th, 1917 (p. 161), and Oct. 12th, 1918 (p. 494).—ED. L.

THE "TOXICITY" OF METHYLENE-BLUE.

To the Editor of THE LANCET.

SIR,—In your issue of Feb. 17th, 1917, you were good enough to insert a short letter on the above subject. Since then, while employed as consultant in malaria for the Scottish Command, I have been able to make more extended researches on the value of this remedy in the treatment of malaria and other affections, and also especially to note the presence or absence of toxic symptoms.

The total quantity of methylene-blue used in one hospital alone (the Edinburgh War Hospital, Bangour) amounted to over two pounds in weight, representing about 5000 doses of 3 gr. each. The number of malaria cases treated numbered over 3000. It may therefore justly be claimed that conclusions reached from observations on such a wide base are worthy of consideration.

I wish to combat the idea that methylene-blue possesses toxic properties, and the following few facts regarding the results obtained by its use may be of interest; a fuller statement on these points will be published later.

The drug was chiefly used in the treatment of malaria and flagellate infections of the intestine. In acute malarial attacks it was found that though in many cases favourable results were obtained, the efficacy of methylene-blue in cutting short attacks was distinctly inferior to quinine. On the other hand, it frequently proved a valuable remedy in preventing relapses, especially in cases where quinine, administered by the mouth or by intramuscular and intravenous injections, had signally failed.

The results obtained in flagellate infections were fairly good, though often unsatisfactory.

Regarding "toxicity," although some of the patients received over 400 gr. in a course of treatment extending over several weeks, beyond occasional complaints of slight bladder irritation no troublesome symptoms were manifested which could be attributed to the use of the drug. It may therefore be accepted that in methylene-blue we possess a remedy of great value; and that, provided a pure supply is obtainable, it may be freely used without fear of "toxic" symptoms resulting. I am, Sir, yours faithfully,

Edinburgh, June 10th, 1920. D. G. MARSHALL.

THE SURGICAL TREATMENT OF PROLAPSE OF THE UTERUS AND VAGINA.

To the Editor of THE LANCET.

SIR,—I do not think it is my business to attempt to disperse the fog that enshrouds the thoughts and impressions of Mr. R. H. Paramore. *That he lacks lucidity* and is, therefore, unsuited to teach was amply manifest in his first letter. I ask you to imagine, Sir, a medical student endeavouring to understand and assimilate what, no doubt, Mr. Paramore considered words of wisdom. Several intelligent practitioners have assured me that they obtained no glimmering of light after reading his letter through more than once. I have never before myself been accused of nebulosity, and on the present occasion Mr. Paramore would have been well advised if he had avoided the cheap form of argument that is abhorred by every school-boy. However, my only concern in taking notice of his first letter was to prevent those who might read his remarks imagining that the statements concerning myself were correct, for, as Mr. Paramore says, criticism in THE LANCET receives wide publicity.

It is necessary for me once more to controvert the intentional inaccuracies of Mr. Paramore, who, in spite of being exposed for similar inaccuracies in his first letter, in your issue of June 12th, not only attributes to me more views and statements I have never held or made, but also makes two definite aspersions: one is that I do not know the meaning of the word "floor": the second implies that I do not understand the significance of the adjective "congenital." I am afraid I must ignore any further puerile insinuations of this sort until I have some evidence that Mr. Paramore has taken the trouble to read my book, "The Principles of Gynæcology," third edition, if the abstract of my lecture in THE LANCET, which should be read as stated in conjunction with this work, does not make everything clear to him. In my book he will discover the term "congenital" qualified on p. 212 and elsewhere, as it was qualified in my lecture, and he will find the pelvic floor discussed on p. 47, and in my lecture I described, for want of a better name, as I stated definitely at the time, an operation for "the reconstruction of the posterior segment of *the peritoneal aspect* of the pelvic floor"—indeed, I asked for a better description of the procedure.

We must have lucidity and honesty, and until we get them there will be much diverse teaching in regard to the surgical treatment of prolapse, which, after all, was the subject of my lecture. Had Mr. Paramore heard some of the remarks I have heard from doctors and patients regarding so-called cures for prolapse he would have realised that facts and figures *are* important. (Honesty may be assumed until the contrary has been proved, in accordance with British traditions of justice.) Moreover, good operations are the result of good reasoning, whatever may be Mr. Paramore's subsequent interpretations of them, and technique is of considerable importance. In my lecture I was speaking to a large number of surgeons of experience who could correctly interpret the reasons for my adopting the procedures advocated without my treating my audience to a discourse on elementary anatomy I have, consequently, suggested that Mr Paramore should publish his own figures and methods, if he has any worthy of publication In regard to figures there is a general idea that Mr Paramore has himself done comparatively few operations for prolapse, and this is supported by his statement that he has performed only twice the interposition operation, although he approves of it If this idea be erroneous it would be well for him to dispel it As to methods, if Mr Paramore has any new procedure why is he so secretive about it? I must leave your readers to draw their own conclusions Meanwhile, it is surely a little presumptuous of Mr Paramore to attempt to interpret procedures thought out and introduced by others, some of which he has never seen and concerning the object of which he has not even troubled to inquire

I am afraid I have written plainly it is time someone did Critics who adopt the methods to which I have referred must be checked Even abuse is much preferable to perversions of one's views and statements

I am, Sir, yours faithfully,

Liverpool, June 13th 1920 W BLAIR BELL

THE IMPORTANCE OF IMMEDIATE SELF DISINFECTION.

To the Editor of THE LANCET

SIR,—Neither Lord Willoughby de Broke nor the society over which he presides believes that the establishment of disinfectant centres would be of much value in reducing venereal disease, and during his speech on June 3rd Lord Willoughby de Broke brought forward powerful arguments against the practicability of ablution centres By inference the report in your issue of June 12th suggests that Lord Willoughby de Broke is in favour of the establishment of disinfectant centres, which is not the case, and I write lest a misunderstanding may arise as to the aims and objects of this society, which are to instruct the public as to (*a*) the vital importance of self disinfection at the time of exposure to risk as a preventive of venereal disease, and (*b*) the methods of application

I am, Sir, yours faithfully,
H WANSEY BAYLY,
Hon Sec Society for the Prevention of Venereal Disease
143 Harley street W 1 June 12th 1920

AGE AND VENEREAL INFECTION

To the Editor of THE LANCET

SIR,—At the instigation of Colonel L W Harrison last year I made a private inquiry into the sex history of 600 consecutive V D cases, chiefly with a view to determining the infection exposure ratio, this worked out at 1 15 6 Dr G G Johnstone observes in THE LANCET of June 12th that there is a sharply defined maximum at the age of 18, when illicit coitus begins I found that 469 out of the above series of 600 stated that their first sexual intercourse took place between the ages of 17 and 21 It is an important sociological fact, hardly needing to be proved by statistics, that normal sexual man is most prone to indulge in pseudo romance during the latter period of exuberant adolescence, when ideals may be in a transition phase

My predecessor, Captain W Craik, in statistics carefully kept over a series of several thousand cases, found that 86 per cent (I quote his figures from memory) were infected by "amateurs" Also, that 24 per cent of the men were teetotallers and few claimed to be drunk at the time —I am, Sir, yours faithfully,

JOHN DONALD, M D, B Sc, D P H,
Major
De Montfort square Leicester June 13th 1920

PERIOD OF SERVICE FOR GRATUITY TO R A M C CAPTAINS —A Royal Warrant states that captains of the R A M C who receive a permanent commission in this corps subsequent to May 25th, 1920 must complete eight and a half years total commissioned service in order to qualify for the gratuity of £1000 payable to retiring officers

Medical News.

UNIVERSITY OF CAMBRIDGE —The dates for the next examination for the Diploma of Psychological Medicine have been fixed as follows for Part I Oct 13th, 14th, and 15th, for Part II, Dec 1st, 2nd, and 3rd The examination for Part I will be held in Cambridge, that for Part II in London Courses of instruction for both parts will be held in Cambridge from July 19th to August 21st, and will include lectures and demonstrations For Part I Dr C R A Thacker, Anatomy and Physiology of the Nervous System, Dr J P Lowson, Psychology For Part II Dr E Prideaux, Psychopathology, Dr M A Archdale, Diagnosis Prognosis, and Treatment of Mental Disorders The fee for the full course is 10 guineas, the course for either part may be taken separately at a fee of 5 guineas Entries should be sent to Dr E D Adrian, Trinity College Cambridge, from whom further information may be obtained

ROYAL COLLEGE OF SURGEONS OF ENGLAND —An ordinary meeting of the Council was held on June 10th at the College, Sir George Makins presiding A report was read from the Board of Examiners in Anatomy and Physiology for the Fellowship stating that at the examination concluded on May 15th 168 candidates were examined including 52 admitted under the special war conditions of whom 38 were successful, and 116 admitted under the ordinary conditions, of whom 36 were successful —A report was read from the Court of Examiners respecting candidates found qualified for the Diploma of Fellow, and diplomas were granted to 39 candidates mentioned in this report The names will be published next week, as well as those of the candidates found qualified for the Licence in Dental Surgery

The following were elected Members of the Board of Examiners in Anatomy and Physiology for the Fellowship for the ensuing year —

Anatomy —J Ernest Frazer F R C S W F Haslam F R C S Gordon Taylor, O B E F R C S A Ralph Thompson F R C S

Physiology —F A Bainbridge M D J B Leathes M D H W Lyle M D A Rendle Short M D

The following were elected Examiners under the Conjoint Examining Board in England for the ensuing year —

Elementary Biology —J P Hill D Sc T W Shore M D

Anatomy —D Hepburn C M G C M Edin, F G Parsons F R C S Arthur Thomson F R C S

Physiology —G A Buckmaster M D H E Roaf M D

Midwifery —J S Fairbairn F R C S Cuthbert Lockyer, F R C S C D Robinson M D G F Darwall Smith F R C S

Public Health —Sir F W Andrewes M D F N Kay Menzies M D

Tropical Medicine and Hygiene —G C Lowe M D H B G Newham M D

The President reported that the five surgeons who were elected honorary Fellows of the College on Feb 12th last would attend to receive their diplomas on Thursday July 8th next, and that it was proposed that the diplomas should be presented to them at 7 30 P M on the same day and that they should afterwards be entertained to dinner in the College by the Council

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW —At the monthly meeting of the Faculty, held on June 7th the following were admitted (after examination) as Fellows —

Norman Stewart Bruce James Alphonsus Conway John Norman Cruickshank John Gracie Stuart Spence Meighan Joseph Hume Patterson Daniel M Kinlay Reid William Robertson Snodgrass Ian Dishart Suttie and Gavin Young

ROYAL COLLEGE OF SURGEONS IN IRELAND —The annual election of President and Vice President and Council of the Royal College of Surgeons in Ireland held last week resulted in the election of Mr Edward H Taylor, the outgoing Vice President as President and of Sir William I de C Wheeler as Vice President The latter was opposed by Mr R C B Maunsell, and considerable interest was taken in the contest The new president Mr Edward Taylor has been since 1916 Regius Professor of Surgery in the University of Dublin and has been for many years surgeon to Sir Patrick Dun's Hospital Prior to his appointment as Regius professor he was for some ten years professor of surgery in Trinity College He is the author of well known text books on Applied Anatomy and on Operative Surgery Sir William Wheeler, who succeeds Mr Taylor as vice president is surgeon to Mercer's Hospital and to the Orthopædic Centre for Pensioners He was a consulting surgeon to H M Forces in Ireland during the war, and was recently awarded a knighthood in recognition of his services He has contributed many surgical articles to the current literature and he is a regular contributor to the *Medical Annual*

London Medical Exhibition.—The tenth exhibition is arranged to be held in the Central Hall, Westminster, S.W., on Oct. 4th, 5th, 6th, 7th, and 8th next.

The Cavendish Lecture will be delivered before the West London Medico-Chirurgical Society by Professor C. S. Sherrington on Friday next, June 25th, at 8.15 P.M., at the Kensington Town Hall. The subject taken is "Posture." The lecture will be preceded by a reception at 7.45 P.M. There will be medical and surgical exhibits.

Anatomical Society of Great Britain and Ireland.—The annual summer meeting of this society will be held at Cambridge on Friday and Saturday, July 2nd and 3rd, following upon the meeting of the British Medical Association at the same place. The programme promises to be full of interest and importance. Several papers on the Morphology and Development of the Central Nervous System have been promised, while such themes as the "Structure of the Earliest Land Vertebrates," "Partial Transposition of the Mesogastric Viscera," and "Avian Structure as Bearing upon Problems of Bird Migration" will provide fertile fields for discussion.

Royal Society of Medicine.—The annual election of officers and Council for the ensuing year will be held at the annual general meeting of Fellows at the Society's House on Wednesday, July 7th, at 5 P.M. The Council has nominated the following:—

As President: Sir John Bland-Sutton, F.R.C.S.

As Honorary Treasurers: William Pasteur, C.B., C.M.G., M.D.; C. H. Fagge, M.S.

As Honorary Librarians: Raymond Crawfurd, M.D.; Walter G. Spencer, M.S.

As Honorary Secretaries: A. M. H. Gray, C.B.E., M.D.; W. Girling Ball, F.R.C.S.

Other Members of Council: Lady Barrett, C.B.E., M.D.; J. Charlton Briscoe, M.D.; J. F. Gordon Dill, M.D.; John Fawcett, M.D.; J. Herbert Fisher, F.R.C.S.; Robert Hutchison, M.D.; Herbert S. Pendlebury, F.R.C.S.; Sir D'Arcy Power, K.B.E., F.R.C.S.; Guy E. M. Wood, M.D.

Section of Laryngology.

The second annual Summer Congress will be held at the Royal Society of Medicine, 1, Wimpole-street, London, W., on June 24th and 25th. An exhibition of pathological specimens and drawings will be held from 10 A.M. to 6 P.M. during the two days of the Congress, and there will also be an exhibition of surgical instruments and drugs from 2 P.M. on the 24th to 1 P.M. on the 25th. On Thursday, June 24th, at 2.30 P.M., a series of papers on cancer of the throat will be read by Sir Charters Symonds, Mr. Wilfred Trotter, Dr. Logan Turner, Mr. Edward D. D. Davis, and Sir StClair Thomson. On Friday, June 25th, at 10 A.M., miscellaneous communications will be given by various members, including Dr. A. Brown Kelly, Sir William Milligan, Dr. Watson-Williams, Mr. Lawson Whale, Dr. Irwin Moore, and Mr. W. M. Mollison. At the afternoon session demonstrations will be given by Dr. Llewelyn Powell, Dr. Felix Rood, Dr. F. E. Shipway, Dr. H. E. G. Boyle, Dr. E. P. Cumberbatch, Mr. Hayward Pinch, Mr. Layton, Mr. Norman Patterson, and Dr. Irwin Moore. On the first day of the meeting a dinner will be held at the Café Royal at 7.30 P.M. Applications for tickets (12*s.* 6*d.*) should reach one of the secretaries, Dr. Irwin Moore, 30A, Wimpole-street, W.1, or Charles W. Hope, 22, Queen Anne-street, W.1, not later than Monday, June 21st.

The Treatment of Tuberculosis in Belfast.—Dr. A. Trimble, as medical adviser to the Belfast Insurance Committee, has just presented his report dealing with the year 1919. The death-rate from pulmonary tuberculosis in Belfast, which was 2·7 per 1000 in 1918, has fallen to 2·1 in 1919. Of the total of 2377 persons examined 887 (37 per cent.), were insured and exempt persons examined on behalf of the Committee, the remainder, 1490 (62·7 per cent.) being non-insured persons examined under the corporation scheme. Of those examined, 8 per cent. were found to be tuberculous or suspect. Dr. Trimble says that while the large number of females employed industrially in Belfast accounts in some measure for the high tuberculosis mortality amongst them as compared with females in large English towns, yet the higher rate of tuberculosis amongst females in the rest of Ireland over the rate amongst males requires some other explanation. As to sanatorium treatment, he thinks it is the best form of treatment in the incipient state of the disease, "but the continuance of improvement largely depends on the patient after leaving the sanatorium attending the dispensary for further treatment," for in advanced cases the sanatorium method can only mitigate the suffering of the patient. Of 1840 new cases treated, 24 were "apparently cured," while in 100 the disease was "quiescent," 178 were greatly improved, 791 improved, 630 in statu quo, and 117 worse. Reference is made to the serious effect of overcrowding owing to the housing problem. The report is, in existing circumstances, depressing.

Middlesex Panel Committee: Presentation to Dr. H. B. Brackenbury.—At the monthly meeting of the Middlesex Panel Committee on June 10th Dr. Brackenbury, who has acted as chairman of the Committee since its inception in 1914, was presented by the members of the Committee with a solid silver coffee pot, sugar bowl, and cream jug. The presentation was made by Dr. C. F. T. Scott, vice-chairman of the Committee, in a felicitous speech in which he attributed the success of the Committee to Dr. Brackenbury's able chairmanship and statesmanlike qualities. Dr. Brackenbury, who was enthusiastically received, thanked the Committee for their kindness, stating that in all his public work he had been governed by the desire to serve the best interests of his fellow insurance practitioners and to promote the public welfare.

Reference was made in the course of the proceedings to the fact that Dr. Brackenbury has been chosen as Liberal candidate for East Walthamstow.

Proposed Amalgamation of Bristol Hospitals.—At a meeting of the governors of the Bristol General Hospital, held on June 14th, it was decided to continue the discussion of the scheme of hospital amalgamation that has been proposed. This scheme already has the support of several of the Bristol institutions, but it is held by the committee of the General Hospital to need considerable modification if their institution is to enter the proposed amalgamation.

Death of Dr. Francis McLaughlin.—The death is announced of a leading Londonderry medical practitioner, Dr. Francis McLaughlin, which occurred at his residence in that city on June 9th from pneumonia, contracted, it is believed, from a chill during a long drive to see a patient. The deceased, who studied in Queen's College, Galway, where he was a scholar, graduated M.D. with honours in the Royal University of Ireland in 1881. Starting practice in Londonderry, he soon acquired a large clientèle, and was extremely popular with all classes. He was a J.P. for the city of Londonderry, where, on the morning of his decease (so little was his death anticipated), the recorder appointed him as medical referee in a compensation claim.

Manchester Schools for Mothers.—The annual report of the Manchester group of "schools for mothers" has recently been issued. The average number of children attending the various welfare centres each week was 1440, as compared with 980 in 1918 and 803 in 1917. During the year two new centres with antenatal clinics were formed by the Public Health Department. The experience of infant welfare centres has shown clearly that unguided instinct can no longer be regarded as the only requisite for the successful rearing of children, and consequently schools for mothers have been established in various centres. The mothers are taught how to promote the comfort of their children in the matter of suitable food, clothing, and general hygiene. A considerable part of the expenses of the schools for mothers is borne by the corporation, through the association of these schools with the Public Health Department, but even with this assistance the cost is not being met, and additional public support is required.

Royal Society of Tropical Medicine and Hygiene.—His Majesty the King has been graciously pleased to command that the Society of Tropical Medicine and Hygiene shall henceforth be known as "The Royal Society of Tropical Medicine and Hygiene." The formation of a society to promote the study of the diseases and hygiene of warm climates was considered by a number of interested persons in January, 1907, at a meeting at the Colonial Office. In due course the society was constituted, with Sir Patrick Manson as President and Major Ronald Ross as Vice-President. The first ordinary meeting was held in June, 1907, and since that date, except during and subsequent to the war when the number of meetings was reduced, eight meetings have been held yearly and 13 volumes of Transactions have been published. The meetings have been well attended, the number of Fellows present rarely falling below 50; and on these occasions Fellows and their friends have the opportunity of exchanging views with workers from all parts of the world. At the end of the first year there were 186 Fellows, and the number is now 660. In the last 12 months 175 Fellows have been elected. From the first the society has been open to all persons interested in its objects, whether medical men or not, who are approved by the Council, and many veterinary practitioners are included amongst its Fellows. The Presidents in succession to Sir Patrick Manson have been Sir Ronald Ross, Sir William Leishman, Sir Havelock Charles, the late Dr. F. M. Sandwith, and Sir David Bruce. The President is now Professor W. J. Simpson. The subscription to the society is 1 guinea, but a rise to 1½ guineas is under consideration. The society's headquarters are at 11, Chandos-street, Cavendish-square, London, W.

A Royal Charter has been granted to the Incorporated Society of Trained Masseuses

OPHTHALMIA NEONATORUM IN BOMBAY —The Blind Relief Association of Bombay is embarking upon a propaganda campaign for reducing the incidence of *infantile ophthalmia* It has published a pamphlet describing preventive measures to be taken immediately on the birth of a child Help in carrying out the precautions is to be obtained from existing local bodies, such as the Sanitary Association and the Health Visitors and Infant Welfare Committee

NORTH EAST LONDON POST GRADUATE COLLEGE VACATION COURSE —A special post graduate course will be held at the Prince of Wales's General Hospital, Tottenham, N, from Monday, July 19th, to Saturday, July 31st, inclusive It will comprise morning demonstrations on clinical methods, including laboratory methods of the examination of cases, and in the afternoons demonstrations on groups of illustrative cases general hospital practice in the various departments, and clinical lectures and consultations On Saturday morning clinical demonstrations will be given in affiliated special hospitals The fee for the course is 3 guineas, or 2 guineas for either week Further particulars, with syllabus as soon as it is ready, may be obtained from the Dean, at the hospital, or at 19a, Cavendish square, W 1

Parliamentary Intelligence.

HOUSE OF LORDS

THURSDAY, JUNE 10TH

The Census Bill

Viscount ASTOR, in moving the second reading of the Census Bill, said that hitherto a separate Act of Parliament had been passed for each census It was proposed that this Bill should be a perpetual Census Bill, empowering His Majesty from time to time, by Order in Council, to direct that a census should be taken for Great Britain or for any part of Great Britain Power was taken to make a census every five years instead of every ten years, so as to secure greater accuracy for the fundamental figures as to population By Clause 6 it was provided that a local census might be made subject to the approval of the Ministry of Health —The Bill was read a second time

HOUSE OF COMMONS

WEDNESDAY, JUNE 9TH

New Indian Army Pension Rates

Mr AUBREY HERBERT asked the Secretary for India whether, in view of the anxiety and uncertainty in the minds of many Indian Army officers who were contemplating retiring owing to the changed conditions of service in India, but could not do so until the new pension rates were published, he could now state when these rates would be published —Lieutenant Colonel ASSHETON POWNALL asked the Secretary for India whether the new scale of pensions for retired officers of the Indian Army had yet been approved —Mr MONTAGU replied A communique giving particulars of the new scale of pensions for officers of the Indian Army and Indian Medical Service was sent to the press on June 3rd and published the following day

Extra Nourishment for Tuberculous Persons

Mr CHARLES EDWARDS asked the Minister of Health whether local War Pensions Committees were authorised to make provision for extra nourishment for ex Service men in sanatoriums or at home who were suffering from tuberculosis and in need of special diet, and if he would make provision for similar grants to be made to insured persons who were suffering from the same cause —Dr ADDISON replied I understand that this provision is made in the case of ex Service men suffering from tuberculosis who are under treatment at home, and Insurance Committees are empowered to make similar provision for other insured persons so far as the funds available for sanatorium benefit, after providing for other calls upon these funds, will allow The question of providing "extra" nourishment for patients under treatment in sanatoriums is one which scarcely arises in practice These patients receive the dietary provided by the institution, which is specially adapted to the needs of tuberculous patients and may be varied at the discretion of the medical superintendent to meet the special needs of individual cases

Poor law Officers and Reform of the Poor law

Mr BRIANT asked the Minister of Health if he would withhold his assent to any scheme of a board of guardians for the reorganisation of its institutions or services prior to the introduction of a measure dealing with the Poor law system as a whole until he was satisfied that amicable arrangements had been made with the officers concerned, and if, in the event of Poor law officers suffering monetary loss owing to a transfer of a portion of their duties to other authorities or offices he would satisfy himself that the guardians had made adequate compensation for such loss as might be sustained by them —Dr ADDISON replied It is already the practice to give full consideration to the position of any officers affected by a reorganisation of services

Dental Legislation

Mr RAFFAN asked the Minister of Health if he could now state when it was proposed to introduce legislation for the purpose of carrying out the recommendations of the Select Committee on the Dentists Act, 1878 —Lieutenant Colonel HURST asked the Minister of Health whether he was now able to make a statement as to the prospects of legislation this session in respect of the registration of dentists and dental practitioners —Dr ADDISON replied I regret that, owing to the pressure of other legislation, the draft of this Bill is not yet completed, and I am unable to say when it will be introduced, though I hope it will be ready shortly

Elimination of Slum Areas

Mr L'ESTRANGE MALONE asked the Minister of Health whether the powers given to local authorities under the Housing and Town planning Act were sufficient to enable them to eliminate slum areas, and, if so, what steps were being taken to enforce these provisions —Dr ADDISON replied I think that the powers under the Housing Acts are generally sufficient, but, as the honourable Member will appreciate, it is scarcely practicable to deal on a large scale with slum areas, or to undertake the demolition of houses, until much more has been done to meet the prevailing shortage of houses Local authorities have been requested to proceed with the survey of the unhealthy areas in their districts and with the preparation of schemes in the most urgent cases I will send the honourable Member a copy of the manual on the subject which has been issued

Mr MALONE asked the Minister of Health if he would state the extent of the slum areas, given in acreage number of houses or number of rooms, which had been condemned as unfit for habitation since the creation of the Ministry of Health, the number of occupants so affected, and the numbers for whom new accommodation had been erected —Dr ADDISON replied Since the creation of the Ministry of Health local authorities have submitted for confirmation improvement schemes for areas comprising 10¾ acres and 494 houses, occupied by 2938 persons of the working classes New housing accommodation is proposed to be provided in connexion with these schemes for 2820 persons These schemes are now being considered by my Department —Mr RAFFAN Have any of these schemes been confirmed?—Dr ADDISON Several of them are being confirmed, but I cannot say how many We do not propose to deal with them until more of the existing shortage is dealt with —Mr MALONE Is not an acreage of 10¾ a very small percentage indeed of the slum areas of our industrial towns?—Dr ADDISON Of course it is, but schemes which are before us relate to vast areas of our slums We cannot confirm orders until there is some prospect of sufficient additional accommodation to justify the demolition of these houses We must do these things by stages

Treatment Allowances of Disabled Men

Mr ALFRED DAVIES asked the Minister of Pensions whether treatment allowances could be withdrawn from a disabled man who, owing to his disability, was unable to follow his present occupation, and who was receiving out patient treatment but was certified fit for easy light work, or whether he was entitled to receive full treatment allowances pending his return to his own employment —Major TRYON (Parliamentary Secretary to the Ministry of Pensions) replied For cases of out patient treatment special provision is made by Article 6 of the Royal Warrant in the form of an allowance for loss of remunerative time Full allowances at the maximum rate of pension (to which the honourable Member appears to refer) are only payable where a pensioner who is certified to need a course of treatment is judged to be unable in consequence to provide for his own support and that of his family The question whether in any given case the time occupied in or other circumstances attending the course of treatment prescribed are such as to entitle the man to the maximum allowances must be decided on the facts of the case

Medical Men and Motor car Rebate

Mr RAMSDEN asked the Chancellor of the Exchequer whether, in the event of any rebate being granted to medical men whose work necessitates them running a motor car, the same privilege will be extended to county coroners —Mr NEAL (Parliamentary Secretary to the Ministry of Transport) replied As I stated on June 3rd, the Minister of Transport is unable to recommend a rebate of the proposed taxation of motor vehicles in the case of those used by medical practitioners

THURSDAY, JUNE 10TH.

DANGEROUS DRUGS BILL.

Major **BAIRD** (Under Secretary to the Home Office), in moving the second reading of the Dangerous Drugs Bill, said that it gave effect to the International Opium Convention, signed at The Hague on Jan. 23rd, 1912. The purpose of the Convention was to bring under control throughout the world the traffic in opium and cocaine, and preparations derived from them, and to restrict their use to medical and other legitimate purposes. The Convention was signed on behalf of all the Powers represented, with the exception of Turkey and Serbia. Some of the countries, including Germany, failed to ratify the Convention before the outbreak of war, and it was never brought into operation. During the war Great Britain found it necessary to take action on her own account owing firstly to the spread of the cocaine habit, and secondly to the extensive smuggling of opium carried on in the East, which caused trouble and delay to our merchant shipping in connexion with China. Therefore, a Regulation, No. 40B, was made under the Defence of the Realm Act, which enabled them to control the manufacture, sale, and distribution of cocaine; and a proclamation was issued, under the Customs Consolidation Act, to prohibit the import of cocaine or opium except under license of the Secretary of State. Those measures did not prove altogether successful, largely owing to the difficulty of controlling smuggling in the case of an article which could be brought in in such small quantities and so easily sold as opium. They believed that the only effective control would come by international coöperation. The Allied Powers attached so much importance to this question that the ratification of the International Convention was made one of the conditions of peace and was embodied in Article 295 of the Peace Treaty, which bound the contracting parties to bring the Convention into force and to enact the necessary legislation within 12 months of the coming into force of the Treaty. It became doubly important that they should have the power which this Bill would confer if it became an Act, because of the impending abrogation of the Defence of the Realm Regulations. The Bill was limited to carrying out the Convention except in one respect—namely, in Clause 8, Subsection (2), where powers were asked for to extend provisions not only to the derivatives of morphine and cocaine, but to any other alkaloid of opium, and any other drug of any kind which was likely to produce the same injurious effects. Another reason why they were anxious to have the powers which the Bill conferred upon them was that their representatives in China and Japan had repeatedly referred to the disastrous effects on the traffic which was being carried on with China in morphia and cocaine to a very large extent, and both China and Japan were signatories to the Convention.

Lieutenant-Commander **KENWORTHY**: When it is passed will this Bill be able to stop the whole of this great trade in morphia?—Major **BAIRD** said it was doubtful whether it would stop the whole of it, but the Bill embodied the best means which commended themselves to those who represented these 42 Powers at the International Convention, and it represented the results of their labours and their recommendations. It might not be perfect, but it was a great step in advance, and they hoped that if they got these powers they would be able largely to assist our Allies in Japan and our friends in China to deal with this very important and pernicious matter. Naturally, a big measure of this kind affected the interests of large bodies of their fellow countrymen, and the Pharmaceutical Society had made representations. Both with regard to their representations and others which they had had from the wholesale dealers they hoped to be able to meet them. As regarded the Pharmaceutical Society, they had already had an opportunity of considering the points which they advanced, and with one exception he hoped in Committee it would be possible to accept amendments which would meet their views. As regarded the wholesale dealers, they expressed a desire to put their views before the Home Secretary, but only so recently as a day or two ago, and therefore it had not been possible to meet them and discuss the question, but with regard to both these important bodies they were most ready to listen to any representations which would enable them to devise some amendments which would alleviate any legitimate hardships without weakening the force of the measure to which they attached very great importance. The details of the Bill were of a very technical character. Everyone was imbued with the desire to restrict the misuse of this most valuable drug and to collaborate with other countries in reducing its uses to legitimate and proper preparations, and seeing that the Bill embodies the recommendations of this very competent body of men, representative of practically all the nations who assembled at The Hague in 1912, he hoped the House would be content to give them the second reading without prolonged discussion.

The International Aspect.

Dr. D. **MURRAY** congratulated the Home Secretary on taking up the international aspect of this question. The history of this country in connexion with the drug habit all over the world and in connexion with the opium traffic had been one of the most disgraceful pages in our history, and one which we could never look back upon without a sense of shame. It was a hopeful augury for the League of Nations to see the Government associating themselves with other nations in such a humane Bill, and although on the surface the provisions made for the international aspect did not appear very drastic, still he hoped they would be more effective than they appeared to be. The drug habit was a matter which was well worth the attention of the Government, and he was glad they were beginning to take notice of this great evil in the social structure of our country. It was a growing evil and seemed to grow *pari passu* with certain types of civilisation. There was not much of it in our country districts; as a rule these habits were learned, developed, and practised in towns, and especially the bigger ones. The Government had selected, perhaps, the principal drugs that were used—opium and its derivatives, morphia and cocaine. The manner in which the Government proposed to attack the drug habit was quite on the right lines, and with one or two slight modifications he saw no reason why they should not have their Bill. He did not know what the references to medical men and dispensers exactly meant. Very often the excuse given by people who were victims of the drug habit was that the doctor prescribed it for them for certain ailments, and, unfortunately, after the immediate need for it had passed the patient, finding the effects of it pleasant, continued it until he became a victim and could not get rid of it. He presumed what was meant by one of the clauses giving power to the Home Secretary for "regulating the issue by medical practitioners of prescriptions containing any such drug and the dispensing of any such drugs," was that a chemist who dispensed a prescription containing any of these drugs would not be allowed to dispense it without a renewed prescription being given by the doctor. He did not know how many times a doctor might allow it to be dispensed without the renewed authority, but there should be some limit to that practice, otherwise they might go on taking the drug for a long time. He had often heard people who were addicted even to drink say that their doctor advised them to take some, as St. Paul said, for the stomach's sake, or for some other medical purpose. That was unfair to the doctors. There was one thing on which he would be inclined to blame some of his medical brethren in connexion with the drug habit, and that was the habit of taking medicated wines among women. He wished the Home Secretary had taken power to abolish medicated wine. If a doctor wanted to prescribe wine let him prescribe good honest port, or something of that kind, without it being mixed up with drugs. There was nothing that produced more drinking among women than medicated wines. With regard to the question of keeping books of all the drugs that were sent out, he hoped that any regulation that was adopted in regard to dispensing or prescribing, or in regard to the necessary book work in connexion with drugs would be framed in consultation with the representatives of the medical profession and of the pharmaceutical profession. Otherwise they might be drawn by somebody who might produce harm without giving the results required. For an offence against this Act a fine of £200 could be imposed, and he would draw attention on this point to the question of alcoholic poisoning. There were many thousands of deaths from that cause every year. The question of penalty ought to be very carefully considered before the penalties were finally adopted.

Mr. **WOOLCOCK**, who said he was the only person in that House who held a pharmaceutical certificate, and had acted for some years as secretary of the Pharmaceutical Society, welcomed from his experience the principal object of the Bill. He called attention particularly to Clause 7 of the Bill, paragraph B, which prohibited "the manufacture, sale, or distribution of any such drugs, except by persons licensed or otherwise authorised under the regulations." The effect of that might be that a Government Department would be able to supersede by regulations the important provisions of the Poisons and Pharmacy Act. He suggested that the Government might give them an assurance in regard to two or three important matters when the time came. The regulations to be made in under this Bill should be in addition to, and not in substitution of, the provisions of the Pharmacy Act and the Poisons and Pharmacy Act. He asked also for a promise on the Committee stage that a pharmacist who carried on business as a chemist should have the right to dispense and retail substances provided for under this Bill. The Government ought to assure the House that anyone who was charged with an offence under the Bill should have an appeal to some court.

Impracticable Regulations Obviated.

Captain **ELLIOT** said that they were very grateful to the Home Office for Clause 11, which provided that Regulations should be laid before Parliament which would have the power of considering them and of annulling them if necessary. That would help to avoid any fear that some committee of officials uld draw up impracticable regulations It was interest g to think that this Bill was being brought in primarily r an evil spreading, he thought, more from the United ates than from any other country That country was the eat temperance country at the moment It was a strange d noteworthy thing that alcoholism was in many ways mply the expression of a nervous weakness in the patient they tried to stamp out alcoholism by pure prohibition easures they drove the weak man from one form of drug another form of drug The fact that such a Bill as this as necessary was a very striking commentary on the trend some of our legislation Other countries that had managed get rid of alcoholism had found that some other vice d taken its place It tended to show that they should nl twice and thrice before interfering with the long tablished habits of the human race, especially of the estern races which had been accustomed to use alcohol moderation The American people had gone in for ohibition and had developed the drug habit to an extent together unknown in this country It might be simply coincidence, but the death rate from delirium tremens had ne up some 300 per cent In many cases the nervous athesis resulted in a trend either towards alcohol or some her drug, and if alcohol was prohibited then the other ug which was much more fatal, was resorted to in its ace He thought all medical men in the House and in the untry would like to draw the attention of the Government the necessity for dealing with patent medicines He gged the Home Office to confer with the Ministry of ealth and to disinter the valuable Report of a Committee that House which sat before the war on the subject of atent medicines, and to introduce legislation along the lines commended Various great evils had occurred from eople using these drugs under conditions which no medical an or chemist would dare to prescribe As to the Bill efore the House, they hoped that it was only the beginning international work for dealing with health problems as a hole The microbe knew no frontier, and disease was not mited to any kind of national flag

The Bill was read a second time

Coroners' Verdicts in Ireland

Colonel Sir ALEXANDER SPROT asked the Chief Secretary o the Lord Lieutenant of Ireland whether his attention had een directed to the evidence given on May 27th before the oroner s jury which inquired into the death of James Dalton at Limerick on May 15th last, whether Joseph Dalton a brother of the deceased, gave evidence that he was resent at a Dail Eireann inquiry into allegations against James Dalton of having relations with the police, and produced a document which was called Dail Eireann official verdict in the case of James Dalton whether the coroner accepted this document and handed it to the jury for their consideration, and whether it was proposed that the verdicts of illegal courts should be accepted by officials of the Government sitting in a judicial capacity and treated as material evidence for the consideration of the jury —Mr HENRY (Attorney General for Ireland) replied The answer to the first part of the question is in the affirmative It appears that a brother of the deceased man produced a document to the effect mentioned in the question, which was read The coroner is not an official of the Government, and the document in question was at once seized by the district inspector —Sir J BUTCHER Is there no control by the Government over the proceedings of coroners' courts?—Mr HENRY The coroner sits in a judicial capacity and is entitled to decide what documents he will receive or refuse to receive in evidence —Captain WEDGWOOD BENN Does the Government assume any responsibility in connexion with the verdicts brought in by coroners' courts?—Mr HENRY That depends entirely upon the verdict

Women, Young Persons, and Children (Employment) Bill

Major BAIRD moved the second reading of the Women, Young Persons and Children (Employment) Bill, the object of which, he explained, was to enact the necessary legislation to enable effect to be given to the Conventions which were agreed to at the recent International Labour Conference at Washington Clause 2 was not part of the Convention It asked the House to sanction the continuance of conditions which had been adopted during the war, under which women had been employed who could not have been employed under the Factory Acts Under those Acts the day ended at 8, the two-shift system had the two fold result of finding employment for something like 25 000 women and rather over 5000 young persons, with the accompanying increase in production and of work in the dependent industries —Lieutenant Colonel FREMANTLE entered a protest against Clause 2 from the point of view of public health If they were going to permit the employment of women in the factories up to 10 in the evening that would be a constant trouble in trying to get back any kind of home life, which was at the bottom of healthy homes They wanted to go against any legislation that tended further to break up family life It was totally unnatural for women to be employed night and day in the factories —Major BAIRD suggested that the House might give a second reading to the Bill and if the Government was unable to remove by its arguments the strong opposition to Clause 2 it was clear that that clause could not stand —The Bill was read a second time

FRIDAY, JUNE 11TH

Veterinary Surgeons Act Amendment Bill

The Veterinary Surgeons Act (1881) Amendment Bill was read a third time

The Health Resorts and Watering Places Bill

The Health Resorts and Watering Places Bill was read a third time

MONDAY, JUNE 14TH

Insanitary Areas

Mr MYERS asked the Minister of Health if he would state the number of separate areas upon which representations had been made by medical officers of health declaring such areas insanitary areas under the provisions of the Housing, Town Planning, &c, Act 1909 which were in the hands of the Local Government Board in August, 1914, and upon which no action had then been taken by the local authorities concerned, the number of houses and the population involved in these representations and the extent to which improvement schemes under the provisions of the Act had since been carried out, and in how many cases these insanitary areas still remained and the extent to which the houses affected were still occupied —Dr ADDISON replied There were three such areas comprising 890 houses, occupied by 4387 persons A local inquiry was held in each of these cases In two cases the local authorities were called upon to make improvement schemes, but proceedings had to be deferred owing to the war A scheme in regard to one of the areas has now been submitted to me, and a scheme in regard to another of them has been promised The third case was one of a small area (comprising 47 occupied houses) for the greater part of which an improvement scheme had already been made and confirmed The local authority were called upon to proceed to deal with the area, but action was interrupted by the war I have asked for a report on the present position of the area

Closing Orders

Mr MYERS asked the Minister of Health if he would state the number of dwelling houses which were still occupied in respect of which closing orders, numbering 22 115, were made in 1913 and 1914 upon the representations of the medical officers of health in England and Wales, and if he would state whether, under the Increase of Rent and Mortgage Interests (Restrictions) Bill now before the House it would be necessary for the tenants of these dwellings to secure an order from the county court judge to ensure them protection against the increased rent charges embodied in the Bill before the House —Dr ADDISON replied I regret that I am unable to give the information asked for in the first part of the question As regards the second part of the question under the proposals of the Bill the increases under paragraphs (*c*) (*d*) of Clause 2 (1) will not be chargeable if on production of a certificate of the sanitary authority or otherwise the court is satisfied that they should be suspended

General Medical Council Bill

The Direct Representatives of the General Medical Council Bill was read a second time

TUESDAY, JUNE 15TH

Unsuitable Artificial Limbs

Captain LOSEBY asked the Minister of Pensions if he was aware that ex soldiers who lost limbs during the recent war had in certain cases been supplied with unsuitable artificial limbs of an inferior quality, if he would state the policy of the Ministry in the matter, and if he would consider the advisability of issuing instructions that all artificial limbs supplied must be of the best quality procurable —Major TRYON (Parliamentary Secretary to the Ministry of Pensions) replied Every precaution is taken to see that only artificial limbs of the best quality are supplied Every limb must be passed by the surgeon of the hospital, and periodical inspection is given by officers of the Ministry In the event of any defect being subsequently found, readmission to a limb fitting hospital is arranged on application being made through the appropriate Local War Pensions Committee, in order that the defect may be put right or a more suitable type of limb supplied

Distribution of Artificial Limbs

Major COHEN asked the Minister of Pensions if he would state how many soldiers who were suffering from the amputation of a leg had been provided with their second artificial limb, and how many such soldiers were still waiting for the said limb —Major TRYON replied A duplicate artificial leg has been supplied in 6362 cases The number still to be supplied is 20,350

The Services.

ROYAL ARMY MEDICAL CORPS.

Major H. G. Pinches relinquishes the temporary rank of Lieutenant-Colonel.

Capt. A. M. Pollard to be temporary Major whilst specially employed.

Capt. N. T. Whitehead is seconded for service with the Egyptian Army.

D. E. Carter, late temporary Honorary Captain, to be temporary Honorary Captain.

Officers relinquishing their commissions:—Temporary Majors retaining the rank of Major: H. W. A. Burke, J. Jenkins. Temporary Captains granted the rank of Major: E. Kidd, (Acting Major) J. McF. Donnan, J. Bamforth, P. P. J. Stewart. Temporary Captains retaining the rank of Captain: E. Reavley, A. H. Greg, J. Humphreys, G. G. Bruce, M. J. Houghton, L. H. Werden, B. N. Sinclair, P. R. Browning, G. W. Spencer, B. P. Allinson, E. S. Hall, E. C. Dutton, D. Fettes, O. Heath, J. D. G. Stewart, F. G. Smyth, T. L. Harrison, M. E. Willcock, A. H. Hall, J. Paterson, L. W. Howlett, C. R. B. Von Braun, J. G. Elder, G. J. Fraser, G. E. A. Petrie, H. V. Walsh. Temp. Lieut. E. J. Hynes (retains the rank of Lieutenant).

SPECIAL RESERVE OF OFFICERS.

Capt. T. P. Chapman relinquishes his commission and retains the rank of Captain.

Lieut. (temp. Capt.) N. R. Hathaway resigns his commission and is granted the rank of Captain.

TERRITORIAL FORCE.

Capt. G. L. Thornton to be Lieutenant-Colonel and to command 1st Wessex Field Ambulance.

Majors H. Waite and H. Halton resign their commissions and retain the rank of Major.

Capts. W. P. Ferguson and A. L. Sharpin resign their commissions and are granted the rank of Major.

Capts. R. C. S. Smith, R. J. Chapman, T. Allen, and L. Colebrook resign their commissions and retain the rank of Captain.

London University Contingent, Medical Unit: Capt. W. Wright relinquishes his commission and is granted the rank of Captain.

TERRITORIAL FORCE RESERVE.

Capt. C. C. Grummitt, from the General List, to be Captain.

ROYAL AIR FORCE.

Medical Branch.—Capts. J. S. Prendergast, F. H. Bowen, A. L. Robinson, S. H. DeG. Pritchard are transferred to the unemployed list.

Lieut. C. H. Vernon relinquishes his commission.

Dental Branch.—Capt. G. F. H. Bloom is transferred to the unemployed list.

DEATHS IN THE SERVICES.

Surg.-Gen. James Cleghorn, I.M.S. (retired), C.S.I., Honorary Surgeon to the King, at his residence, Weysprings, Haslemere, Surrey, on June 14th, aged 79. He entered the Indian Medical Service in 1865 and served with the Bhootan Expedition (medal and two clasps). In 1891 he was appointed Inspector-General of Civil Hospitals in the Punjab and four years later became Director-General and Sanitary Commissioner. He represented the Government of India at the Venice Plague Conference in 1897. On retirement he was appointed Honorary Surgeon to the Queen in 1898.

Lieut.-Col. John Lancaster, I.M.S. (retired), on June 9th, at a nursing home, Streatham, aged 71. He was for many years Chief District Medical Officer of Vellore, N. Arcot, President of the Board of Examiners of Madras Medical College, and Civil Surgeon to the Governor and Staff at Coonoor. After 35 years of service he retired owing to ill-health caused by devotion to duty in connexion with the plague and cholera camps. For his work he twice received the thanks of the Government.

BROUGHT TO NOTICE.

The names of the following medical officers are to be added to those already brought to notice for services rendered in the spheres of operations detailed. All are members of the R.A.M.C. except where otherwise stated:—

France.—Temp. Lt.-Col. C. S. Myers, C.B.E.; Capt. C. S. O'Neill, O.B.E.; Capt. R. W. A. Salmon, O.B.E.

East Africa.—Temp. Capt. W. G. Cobb, D.S.O.; Capt. H. L. Duke, O.B.E., Uganda Med. Serv.; Maj. (temp. Lt.-Col.) W. V. Field, O.B.E., S. Afr. M.C.; Capt. (acting Maj.) S. J. V. Furlong, O.B.E.; Temp. Lt.-Col. J. Grinsell, O.B.E., S. Afr. M.C.; Capt. (acting Lt.-Col.) J. D. Kidd, O.B.E., M.C.; Lt.-Col. R. Milner-Smyth, O.B.E., S. Afr. M.C.

India.—Capt. (temp. Maj.) A. F. Babonau, O.B.E., I.M.S.; Maj. and Bt. Lt.-Col. (temp. Col.) F. A. F. Barnado, C.I.E., C.B.E., I.M.S.; Temp. Capt. J. Cairns, O.B.E.; Capt. (temp. Maj.) F. R. Coppinger, O.B.E.; Temp. Capt. S. K. Engineer, O.B.E., I.M.S.; Maj. (temp. Lt.-Col.) J. K. S. Fleming, O.B.E., I.M.S.; Maj. G. D. Franklin, O.B.E., I.M.S.; Maj. A. T. Frost, O.B.E.; Capt. W. A. Frost, O.B.E.; Capt. T. B. Heaton, O.B.E.; Maj. D. P. Johnstone, O.B.E.; Maj. T. W. Minty, O.B.E., I.M.S.; Lt.-Col. P. St. C. More, O.B.E., I.M.S.; Maj. R. B. Nicholson, O.B.E., M.C., I.M.S.; Maj. H. W. Pierpoint, O.B.E., I.M.S.; Lt.-Col. J. J. W. Prescott, D.S.O., O.B.E.; Capt. C. H. Smith, O.B.E., I.M.S.; Capt. (temp. Maj.) J. R. D. Webb, O.B.E., I.M.S.; Temp. Lt.-Col. Raghabendra Row, O.B.E., I.M.S.

North Russia.—Capt. (acting Maj.) W. N. W. Kennedy, O.B.E.; Lt.-Col. T. McDermott, O.B.E.; Capt. J. Renwick, O.B.E.

Salonika.—Temp. Capt. (acting Maj.) F. R. Brown, O.B.E.; Capt. (acting Maj.) B. L. Davis, O.B.E.; Dr. (Miss) E. B. Hollway, O.B.E.; Dr. (Mrs.) A. M. Livingstone-Learmonth, C.B.E., attd. R.A.M.C.

Siberia.—Maj. F. J. Collings, O.B.E., Can. A.M.C.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

HOUGHTON, M. J., M.R.C.S., L.R.C.P. Lond., has been appointed Medical Referee under the Workmen's Compensation Act for County Court Circuit No. 43.

WYLIE, D. S., C.M.G., C.B.E., F.R.C.S., Inspector of Hospitals, Department of Public Health and Hospitals, New Zealand.

Great Northern Central Hospital: GORDON, E., M.B. Aberd., House Surgeon; and FINIGAN, F. O'C., L.D.S., Assistant to Dental Surgeon.

Certifying Surgeons under the Factory and Workshop Acts: REEVES, T. C., M.R.C.S. Eng., L.R.C.P. Lond. (Bollington); SMYTH, A. F., M.B., B.Ch. N.U.I. (Ballyhaunis).

Vacancies.

For further information refer to the advertisement columns.

Aylesbury, Royal Buckinghamshire Hospital.—H.S. £200.

Barnet, Wellhouse Hospital.—Res. Asst. Med. Supt. £250.

Barrow-in-Furness County Borough.—Asst. M.O.H. and Clin. Tuberc. Officer. £500.

Battersea General Hospital (Incorporated), Battersea Park, S.W.—Res. M.O. £200.

Belgrave Hospital for Children, Clapham-road, S.W.—H.S. £100.

Bermondsey Medical Mission.—Female Locum Tenens. £200.

Birmingham General Hospital.—H.S.'s and H.P. Also Res. An- £100.

Bolton Infirmary and Dispensary.—Female Second H.S. £250.

Bradford Children's Hospital.—H.S. £200.

Bradford City.—Asst. Bacteriologist. £600.

Brighton, Hove and Preston Dispensary.—Res. M.O. £200.

Brighton, Royal Sussex County Hospital.—Jun. H.S. £130.

Bristol General Hospital.—Cas. H.S. £175.

Burnley, Victoria Hospital.—H.S. £250.

Bury County Borough.—Venereal Diseases Officer. 3 gs. a session.

Canning Town Women's Settlement Hospital, Balaam-street, Plaistow, E.—Female Hon. Asst. P. Also Female Res. M.O. £150.

Cardiff, King Edward VII. Hospital.—H.S. £200.

Cardiff, King Edward VII. Welsh National Memorial Association.—Asst. Tuberc. P.'s. £500.

Central London Throat and Ear Hospital, Gray's Inn-road.—Th Asst. S.

Chelsea Infirmary, S.W.—Second Asst. M.O. £325.

Chichester, Royal West Sussex Hospital.—H.S. £200.

City of London Maternity Hospital, City-road, E.C.—Res. M.O. £1

Colchester, Essex County Hospital.—H.P. £200.

Coventry Education Committee.—School Dentists. £400.

Croydon County Borough.—Asst. M.O.H. and Asst. Sch. M.O. £50 Also Female Asst. M.O.H. for Maternity and Child Welfar Work. £500.

Doncaster Royal Infirmary and Dispensary.—Asst. H.S. £225.

Donnybrook, Dublin, Royal Hospital for Incurables.—Res. M.O. £200.

East Suffolk County Education Committee.—Dental Surgeon. £500. Asst. School M.O.'s. £500.

Elizabeth Garrett Anderson Hospital, Euston-road.—Female Sen. Asst. M.O. £200.

Federated Malay States.—Radiologist. £840-980.

Frimley, Brompton Hospital Sanatorium.—Asst. Res. M.O. £250.

General Lying-in Hospital, York-road, Lambeth, S.E.—Registrar.

Glasgow University.—Lectureship in Ophthalmology.

Gloucester County Asylum.—Jun. Asst. M.O. £300.

Gloucestershire Royal Infirmary and Eye Institution.—H.P. £175.

Gravesend Hospital.—H.S. £200.

Great Northern Central Hospital, Holloway, N.—Cas. O. £200.

Halifax Royal Infirmary.—Senior, Second, and Third H.S.'s. £350, £300, and £275 respectively.

Hospital for Consumption and Diseases of the Chest, Brompton, S.W.—Asst. Res. M.O. £150. Also H.P. 30 gs.

Hospital for Sick Children, Great Ormond-street, W.C.—Cas. M.O. £200. Also Med. Reg. and Path. £200.

Huddersfield Royal Infirmary.—Sen. H.S. £250.

Hull Royal Infirmary.—Asst. H.S. £150.

Huntingdonshire County Council.—Female Asst. County M.O and Asst. Sch. M.O. £500.

Italian Hospital.—H.S. £150.

Lancaster Royal Infirmary.—H.S.

Leamington Spa, Warneford, Leamington, and South Warwickshire General Hospital.—Res. H.P. £200.

Leeds City.—Female Asst. M.O. for Maternity and Child Welfare. £500.

Leeds City Tuberculosis Sanatorium.—Res. Asst. M.O. £300.

Leeds Public Dispensary.—Res. M.O. £200.

Leicester, City Mental Hospital, Humberstone.—Asst. M.O. £600.

Liverpool Stanley Hospital.—Res. P. and S. £150.

London County Council Hospital Service.—Sixth and Seventh Asst M.O.'s. £300.

London Fever Hospital, Liverpool-road, Islington, N.—Res. Med. Supt. £400. Also Asst. Res. M.O. £200.

London Temperance Hospital, Hampstead-road, N.W.—Res. M.O. £200.

Manchester, Ancoats Hospital.—H.P. £150. Also Two Jun. H.S.'s. £100.

Manchester Royal Infirmary, Roby-street.—Second Res. M.O. £100. Also H.S.'s. £50 first six months, £100 second.

Margaret Street Hospital for Consumption, 26, Margaret street, W—Asst Hon P

Middlesbrough Education Committee—Sch Dent £400

Middleton in Wharfedale Sanatorium, near Ilkley—Asst M O £500

Miller General Hospital for South East London Greenwich, S E—Res Cas O £150 Also H S £100 Also Orthopædic S and Hon P

Ministry of Pensions Special Surgical Hospital, Shepherd s Bush, W—Senior Part-time S

National Dental Hospital, Great Portland street, W—Med Supt £250

Newcastle-upon Tyne Education Committee—Asst Sch M O £500 Also Dental S £400

Newcastle-upon Tyne Hospital for Sick Children—Sen and Jun Res M O 's £250 and £200 respectively

Northampton General Hospital—H S £200

Nottingham City Asylum—Second Asst M O £400

Prison Medical Service—M O s £300

Reading Royal Berkshire Hospital—H S £200

Rochdale Infirmary and Dispensary—Sen H S £250

Rotherham Hospital—Jun H S £150

Royal Free Hospital Gray s Inn road, W C—Asst S 's

Royal London Ophthalmic Hospital City road, E C—Refraction Asst £100

Royal Veterinary College, London, N W—Lecturer on Chemistry £300

Royal Westminster Ophthalmic Hospital King William street, West Strand, W C—Refractionist Assts £100

Ryde, Royal Isle of Wight County Hospital—Res M O £250

St Helens Education Committee—Dentist £450

St Margaret s Hospital Leighton road, Kentish Town N W—Medical Specialist in Diseases of Children 200 guineas

St Mark s Hospital for Cancer, Fistula and Other Diseases of the Rectum, City-road, E C—Hon S and Hon Asst S Also H S £150

Salisbury General Infirmary—Asst H S £150

Salop County Council—Two Asst M O s £517 10*s*

Sheffield Royal Hospital—Asst Cas O £150

Sheffield Royal Infirmary—H P and H S £150 each

Shrewsbury Royal Salop Infirmary—H P £200

Singapore, Straits Settlements, Health Department—Asst Health Officer $7500

South London Hospital for Women, South Side, Clapham Common, S W—Female H P £100

Stafford County Mental Hospital—Locum Tenens Asst M O 8 gs a week

West Africa—Asst M O £650

West Bromwich and District Hospital—Res H S £200

West End Hospital for Nervous Diseases, 73, Welbeck street, W—P Also H P £200

West London Hospital, Hammersmith, W—H P £50 Also Clin Assts

Westminster Hospital, S W—Hon Asst Admin of Anæs

Whitehaven and West Cumberland Infirmary—Res H S £225

Wigan Infirmary—Hon S, P, Asst S, and Asst P Also Senior H S £250

Wolverhampton and Staffordshire General Hospital—H S £200

Worcester County and City Mental Hospital, Powick—Jun Asst M O £300

Worcestershire County Council—Asst County M O s and Sch Oculist £500 each

Wormley Infant Welfare Centre—M O 30*s* per session

The Chief Inspector of Factories, Home Office, S W, gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Buckhaven, Dulais Valley, and Forkhill

Births, Marriages, and Deaths.

BIRTHS.

CLIVE MATTHEWS.—On June 14th at St Leonards on Sea the wife of L Clive Matthews, L D S R C S E of a son

DAWSON.—On June 4th, at Bury St Edmunds, the wife of Geoffrey Dawson L D S, R C S Eng of a son

WACHER.—On June 13th at St George s place, Canterbury, the wife of H Stewart Wacher, M R C S, L R C P, of a daughter

WALKER.—On June 10th at Spencer House, Tetbury, Gloucestershire, the wife of T Warburton Walker M D, of a daughter

MARRIAGES.

FINNY—BUNFORD SAMUEL.—On June 8th, by licence at All Saints Church, Kingston upon Thames William Evelyn St Lawrence Finny, M D, J.P, Barrister at Law, to Emily Grace Bunford Samuel, elder daughter of the late Isaac Bunford Samuel, and Mrs Cooper Turner, of Marlow House Kingston upon Thames

MILLER—DIMOND.—On June 1st, at Kilglass Parish Church, by the Rev W A Scanlen, cousin of the bride, Henry C D Miller, M B late Captain, R A M C (T C), of Whittington Moor, Chesterfield, to Wilhelmina Esther Dimond, late Q A I M N S (R), second daughter of Francis Dimond, J P, Tully House, Lenamore Rathowen, Ireland

DEATHS.

CLEGHORN.—On June 14th, at his residence, Weysprings, Haslemere, Surrey, Surgeon General Cleghorn, C S I, K H S aged 79

KERR.—On June 8th, at South Lodge, Dorchester, Elias William Kerr M D M Ch, B A, aged 70

LANCASTER.—On June 9th, at a nursing home in Streatham, Lieutenant Colonel John Lancaster, I M S, retired

SEWILL.—On June 11th, at Sand Dene Meadvale, Redhill, Henry Sewill M R C S, aged 77

N.B.—A fee of 7s 6d is charged for the insertion of Notices of Births, Marriages, and Deaths

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS.

Thursday and Friday, June 24th and 25th.

LARYNGOLOGY (Hon Secretaries—Irwin Moore, Charles W. Hope)

SECOND ANNUAL SUMMER CONGRESS

Exhibition of Pathological Specimens and Drawings, Surgical Instruments, and Drugs

Thursday —2 30 to 5 30 P M, *Reading of Papers on Cancer of the Throat, followed by Discussions*

7 30 P M, Dinner at the Cafe Royal

Friday —10 A M to 1 P M, Reading of Papers and Discussions left over from the previous day

2 30 to 4 P M, Demonstrations

4 P M, Clinical Meeting

RESEARCH DEFENCE SOCIETY, at the House of the Medical Society of London, 11, Chandos street Cavendish square, W.

WEDNESDAY, June 23rd —3 45 P M, Annual General Meeting Address —Col McCarrison, I M S Vitamines in their Relation to Health Exhibition of Specimens

WEST LONDON MEDICO-CHIRURGICAL SOCIETY, at the Kensington Town Hall

FRIDAY, June 25th —7 45 P M, Reception 8 15 P M, Cavendish Lecture —Prof C S Sherrington Posture Followed by Annual Conversazione

TUBERCULOSIS SOCIETY, at Cardiff

SATURDAY, June 26th —Papers will be read by Dr Brownlee, Dr de C Woodcock, and Dr H Ellis

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East

TUESDAY, June 22nd—5 P M, Croonian Lectures —Dr A F Hurst The Psychology of the Special Senses and their Hysterical Disorders (Lecture IV)

LONDON HOSPITAL MEDICAL COLLEGE (SURGICAL UNIT) in the Units Lecture Theatre, London Hospital, E

Special Course of Lectures open to both Students and Post Graduates

Three Lectures on The Acute Abdomen—

WEDNESDAY, June 23rd, AND FRIDAY —4 P M, Mr R Howard (Lectures I and II)

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S W

MONDAY, June 21st —2 P M, Dr Melville X Ray Department

TUESDAY —2 P M, Sir J *Dundas Grant Throat Department* 2 30 P M, Demonstration —Dr Burrell Vital Capacity

WEDNESDAY —10 30 A M, Dr Punch Demonstration of Museum Specimens 2 P M, Dr Gosse Cardiographic Department 2 30 P M, Demonstration —Dr Punch Tuberculin, and *other Tests for Tuberculosis*

THURSDAY —10 30 A.M, Dr Burrell Artificial Pneumothorax 2 30 P M, Demonstration —Dr Fenton Conduct of Tuberculosis Dispensary

FRIDAY —2 P M, Dr Melville *X Ray Department* 2 30 P M, *Demonstration —Dr Burrell Conduct of Tuberculosis* Dispensary

SATURDAY —1 P M, Dr Batty Shaw Special Demonstration in the Out-patient Department

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen square, W C 1

MEDICAL SCHOOL

MONDAY, June 21st —2-3 30 P M, Out-patient Clinic Dr Collier 3 30 P M, Dr Kinnier Wilson Paralysis Agitans

TUESDAY, June 22nd —2-3 30 P M, Out patient Clinic Dr Grainger Stewart 3 30 P M, *Dr Risien Russell Disseminated* Sclerosis

WEDNESDAY, June 23rd —2 P M, Dr Grainger Stewart Epilepsy 3 15 P M, Demonstration of Fraenkel s Exercises I

THURSDAY, June 24th —2-3 30 P M, Out-patient Clinic Dr *Farquhar Buzzard* 3 30 P M, *Dr Saunders Myelitis*

FRIDAY, June 25th —2-3 30 P M, Out-patient Clinic Dr Gordon Holmes 3 15 P M, Demonstration of Fraenkel s Exercises II

Fee for Post-Graduate Course £7 7*s* C M HINDS HOWELL, Dean

NATIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland street, W

MONDAY, June 21st —5 30 P M, Post-Graduate Lecture —Dr Price Auricular Fibrillation

KING S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON)

A Course of Post Graduate Lectures on Syphilis is being given by various members of the staff of King s College Hospital during the present year

FRIDAY, June 25th —9 15 P M, Prof A Whitfield Treatment of Syphilis I

NORTH EAST LONDON POST GRADUATE COLLEGE, Prince of Wales s General Hospital, Tottenham, N

MONDAY, June 21st —2 30 P M, *Mr J B Banister Gynæcological*

TUESDAY —9 45 A.M, Lieut.-Col R H Elliot Selected Eye Cases and Operations 2 15 P M, Selected Cases —Dr R M Leslie Diseases of the Lung 3 15 P M, Clinical Lecture —Mr Benians Chronic Infections of Mucous Surfaces 4.30 P M, Lecture —*Lieut -Col Byam, O B E The Debilitated Man from the Tropics*

WEDNESDAY —2 30 P M, Dr W J Oliver Dermatological

THURSDAY —2.30 P M, Mr N Fleming Ophthalmological Dr J Metcalfe Radiology

FRIDAY.—2.30 P.M., Dr. C. E. Sundell: Diseases of Children.
SATURDAY.—3 P.M., Mr. H. W. Carson: Selected Surgical Cases.
Daily:—2.30 P.M., Operations, Medical and Surgical Clinics, &c.

ST. MARYLEBONE GENERAL DISPENSARY, 77, Welbeck-street, Cavendish-square, W.
Post-Graduate Course on *Infant and Child Welfare.*
TUESDAY, June 22nd.—10.30 A.M., Dr. E. Pritchard: Practical Demonstrations on the Management and Feeding of Infants and Young Children—Lecture VII., The Uses of Dried *Milk and Patent Foods.*
THURSDAY.—3 P.M., Lecture VIII., The Management of Difficult Cases.

INFANTS HOSPITAL, Vincent-square, Westminster, S.W.
TUESDAY, June 22nd.—5 P.M., Dr. R. Vincent: Practical Points in Infant Feeding.

UNIVERSITY OF LONDON.
Advanced Lectures in Physiology to Students of the University and others interested in the subject.
A Course of Eight Lectures on the Bio-Chemistry of Sterols will be given in the Physiological Laboratory of the University, South Kensington, S.W.
TUESDAY, June 22nd.—5 P.M., Lecture VI., Mr. J. A. Gardner.

UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE POST-GRADUATE LECTURES, at the Sheffield Royal Infirmary.
WEDNESDAY, June 23rd.—4 P.M., Prof. Connell: Lesions of Foot and Pott's Fracture.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.
TUESDAY, June 22nd.—4.30 P.M., Lecture:—Dr. E. M. Brockbank: Anæmias and their Diagnosis.

MANCHESTER FRENCH HOSPITAL POST-GRADUATE LECTURES, 24, Acomb-street (behind Whitworth Park).
THURSDAY, June 24th.—4.30 P.M., Dr. A. C. Magian: Chronic Tubo-Ovarian Inflammation and its Relation to Venereal Disease. Operative Treatment.

Communications, Letters, &c., to the Editor have been received from—

A.—Dr. C. J. H. Aitken, Lond.; Sir C. Allbutt, Cambridge; Dr. E. D. Adrian, Cambridge.

B.—Mr. C. Blizard, Lond.; Prof. E. Barclay-Smith, Lond.; Prof. A. E. Boycott, Lond.; Baby-Saving League of British Guiana, Georgetown; Prof. W. B. Bell, Liverpool; Brighton, School Medical Officer of; Dr. G. Blacker, Lond.; Dr. C. Browne, South Mimms; Mrs. C. Brereton, Lond.; Dr. H. B. Brackenbury, Lond.; Messrs. Butterworth and Co. (India), Calcutta; British Medical Association, Cambridge, Financial Sec. of.

C.—Sir James Cantlie, Lond.; Mr. G. Chubb, Lond.; Dr. E. P. Cumberbatch, Lond.; Dr. N. H. Choksy, Bombay; Prof. E. L. Collis, Cardiff; Dr. C. Chidell, Folkestone; Sir J. Crichton-Browne, Lond.

D.—Mr. A. Doran, Lond.; Dr. L. S. Dudgeon, Lond.; Dr. S. Davies, Lond.; Dr. J. Donald, Leicester; Mr. F. G. Davies, Worcester; Dr. J. H. Davies, Leicester; Capt. F. C. Doble, Lond.

E.—Dr. J. W. Edington, Seabrook; Dr. H. A. Ellis, Lond.

F.—Federation of British Industries, Lond.; Dr. J. G. Forbes, Lond.; Friends Emergency and War Victims' Relief Committee, Lond.

G.—Dr. S. R. Gloyne, Lond.; Dr. H. L. Gordon, Lond.; Dr. W. Gordon, Exeter; Dr. H. O. Gunewardene, Lond.; Mr. H. Gardiner, Lond.; Mr. P. Gosse, Lond.; Mr. G. E. Gask, Lond.; Lt.-Col. E. D. W. Greig, I.M.S., Kasauli; Capt. R. L. Gamlen, Stockport.

H.—Dr. R. Hallam, Sheffield; Dr. C. Homi, Lond.; Messrs. Adam Hilger, Ltd., Lond.; Dr. E. Hemsted, Newbury; Maj.-Gen. P. Hehir; Mr. J. T. Henderson, Pietermaritzburg.

I.—Infants Hospital, Lond.

K.—Dr. T. R. Kenworthy, Shipley; King's College Hospital Medical School.

L.—Dr. T. L. Llewellyn, Newcastle; Dr. Lachmann, Bad Landeck.

M.—Mr. G. Mayall, Bolton; Lt.-Col. D. G. Marshall, I.M.S., Edinburgh; Metropolitan Life Insurance Co., New York; Ministry of Health, Lond.; Dr. W. C. Morton, Leeds; Prof. C. S. Myers, Porlock; Dr. I. Moore, Lond.; Prof. R. Morison, Newcastle-on-Tyne; Dr. J. B. McDougall, Wakefield.

N.—National Hospital for the Paralysed and Epileptic, Lond., Sec. of; Messrs. Noyes Bros. and Cutler, St. Paul; North-East London Post-Graduate College, Dean of.

O.—Dr. W. A. Ogilvy, Birstall.

P.—Dr. L. J. Picton, Holmes Chapel; Mr. J. H. Parsons, Lond.; Dr. C. F. Pedley, Timperley; Dr. J. L. Pawan, Cedros, Trinidad.

R.—Royal Society, Lond.; Dr. J. D. Rolleston, Lond.; Research Defence Society, Lond.; Royal Society of Tropical Medicine and Hygiene, Lond., Hon. Sec. of; Dr. J. J. Redmond, Lond.; Sir Humphry Rolleston, Lond.

S.—Dr. S. Samuel, Leeds; Senex; Society for the Prevention of Venereal Disease, Lond., Hon. Sec. of; Mr. T. Skinner, Lond.

T.—Dr. L. T. Thorne, Lond.; Dr. G. L. Thornton, Exmouth; Miss E. M. Templeton, Lond.; Dr. J. L. Tayler, Lond.; Mr. H. Tod, Lond.; Dr. E. N. Tindal-Robertson, Lond.; Tuberculosis Society of Great Britain and Ireland, Lond.; Dr. C. E. Pronger, Harrogate.

U.—University of Allahabad, Registrar of.

V.—Virol, Ltd., Lond.

W.—Dr. J. D. Wynne, Norwich; Dr. N. Wood, Lond.; Dr. E. Watson-Williams, Clifton; Dr. C. Worster-Drought, Lond.; West London Post-Graduate College, Sec. of; Dr. J. H. Woodroffe, Lond.; West London Medico-Chirurgical Society; Dr. Vere Webb, Tring; Dr. F. P. Weber, Lond.; Prof. Whitehouse, Birmingham.

Y.—Dr. R. A. Young, Lond.

Communications relating to the editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, London, W.C. 2.

Dr. Vere G. Webb points out that Miss Millicent Vere Webb, the lady superintendent of the Dufferin Victoria Hospital, is also senior surgeon to the institution, and was recommended for the Kaisar-i-Hind medal principally for her surgical work.

Notes, Short Comments, and Answers to Correspondents.

THE HYGIENE OF THE FEET AND PHYSICAL EFFICIENCY.

BY FREDK. JOHNSON, M.B. LOND., F.R.C.S. ENG.

NOW that renewed attention is being bestowed on all matters that affect the physical fitness of the youth of the nation, it may not be amiss to call attention to the relation that subsists between sound feet and health. Modern civilisation requires the encasing of the foot in a leather covering. The foot has thus been rendered a delicate member, to a degree only to be appreciated after a study of the human foot among a primitive people who live and grow up unshod, or at the most use a light sandal.

Contrasts.

Let us take, then, for comparison two types of the human foot: (1) the foot of a desert-dwelling Arab; (2) the foot of an artisan of one of our large towns. A study even of the skeletal parts will reveal differences in the degree of development of individual bones, but it is in the living feet that the contrast is most marked. It has been my lot to spend nearly 20 years amongst the Arabs of Eastern Palestine and Mesopotamia. It has also fallen to my lot to see something of our recruits under training during the early years of the war.

It would be interesting to know the statistical returns of recruits who came under treatment for defects of the feet—such as hammer-toes, overlapping toes, flat-foot, ingrowing toe-nail, various forms of tender feet—and to estimate the loss of time which the cure of these defects entailed.[1] I may remark in passing that the Army and Navy pattern of boot seemed, in my judgment, all that could be desired. If, in addition, the statistics were to include those suffering from various degrees of trench foot, the measure of the evil will be still more apparent. It cannot be doubted that the tenderness of the foot of civilised man and its enfeebled vaso-motor mechanism, unable to adapt itself to low temperatures, predisposes that member to the various pathological conditions comprised in the term trench-foot. A department of the Ministry of Health might with advantage pursue this inquiry and gather these statistics from the R.A.M.C. war records.

In considering the causes that have operated in producing the feeble, pallid, and delicate appearance of the foot of the average civilised man, it should be noted that whilst a mechanical cause—compression—accounts for a good deal, the exclusion of light and air have not been without influence. In the case of the bare-footed Arab type it is easy to understand the effect of the actual contact of the sole of the foot with the earth—the friction on the skin, the pressure upon the numerous small joints of the foot of the body weight, with distribution unimpeded by compressing footwear, and, lastly, the complete freedom of the circulation, both cutaneous and deep, the wholesome influence of light and air, and the unimpeded activity of the numerous sweat glands. I would emphasise the observation that, marked as is the difference in outward configuration of the two types of foot, the difference in physiological, especially circulatory, efficiency is still more marked. I have seen the bare-footed Arab in cold mountainous parts and have wondered at his comparative insusceptibility to cold feet.

The High Heel and the Pointed Toe.

When the boot is ill-fitting or ill-shaped the effects of compression are inevitably exaggerated. These effects are more commonly seen in the case of women, for reasons easily explained by reference to the lines of the modern woman's shoe. It should not be forgotten that the penalty of delicate feet is not confined to those long-suffering members alone, but secondary effects of an untoward kind follow inevitably. I allude to the unwillingness to take sufficient exercise and the impairment of general health as the result.

What puzzling thoughts must come to a professor of anthropology as he surveys the boots and shoes exposed for sale in a modern boot shop, especially the footwear of women and children. How is it that he sees the shoe of the young child with a perfect anatomical shape, a low heel, and ents of toe space, and then as he turns to the footwear of der girls and women he finds such a steady alteration shape and style Apart from simple growth there has een no change in the anatomy of the foot Not until our naginary professor turns to the region of female psychogy does he get any explanation of the phenomenon He ill further discover that having reached an explanation he still far from instituting an acceptable remedy to an berration so pernicious in its results The remedy of the vil, however, is not in his department, and for this he may e thankful

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[1] There are, of course, no statistics available for a corresponding number of women. If there were, the result would be still more eloquent, because the incidence of irregularities of the toes and feet is greater in women than men.

Many of our ideas of physical culture and æsthetics owe eir origin to the ancient Greeks, what these ancient oneers of grace and beauty would say to much of modern otwear and its accompaniment—faulty gait—I must leave to he imagination The prevalence of faulty gait is not suffi ently recognised in this busy age, however, it is wide pread and in its minor manifestations at least owes its rigin to the foot and its coverings

Another adverse influence to the well being of the foot is orthy of mention in passing—the hard unyielding surface f our roads and pavements—an evil much increased since he rise of motor traffic In making the above comparison etween the foot of modern civilised man and the foot of he present day Arab or ancient Greek, I am not unmindful f the important item of climate as a factor in the selection f suitable footwear No doubt my residence in the East nd my contact with Orientals have coloured my remarks have tried to emphasise the divergence between the two ypes of foot—that of the Arab and that of civilised man—nd this divergence is barely appreciated by those who have ot lived amongst a primitive people

Some Suggestions

I now pass to one or two suggestions which aim at raising the physiological tone of the feet Firstly, I would remark that, in a matter of this kind, counsels of perfection are of little use, and conventional ideas must, to some extent be respected The most that can be advised is a corrective designed to counteract the effects of unfavourable causes Something, too can be effected on educational lines

The first recommendation is the adoption in schools and camps—holiday camps for boys and girls, and military establishments—of a special bare foot drill, as an integral part of the usual physical culture training I know that the curriculum, both in our schools and in military camps, is already a full one But if the evil of "delicate feet" is as great as I have indicated, it will be no waste of time if an hour, three days a week, winter and summer, be devoted to this special form of physical culture The children of our elementary schools would not, I believe, require much persuading to follow the suggestion, objections, if they arise, would more likely come from the teachers As to the ground on which the drill should take place, I would suggest two types likely to be serviceable (1) an ordinary grass field, (2) a ground with a surface of fine cinder ash, well rolled, and firmly set This latter would cause friction and thereby promote the circulation of the skin of the sole I would further suggest that medical inspectors of schools should include amongst their duties the inspection of the feet and footwear of children, and that the official forms supplied by the county educational committees should provide for this The wearing of sandals without stockings should be encouraged, especially in young people, during the summer months

Lastly, educational propaganda should be instituted Colleges of physical culture are increasing both for men and women Consider for the moment those for women, for perhaps it is amongst women that education on the subject is more needed *Young women leave these colleges after three years'* study, well grounded in the essentials of anatomy and allied subjects which form the foundation of physical culture These qualified teachers should be looked to as a means of educating the uninitiated in schools, and demonstrating to their pupils the mechanics of the normal human foot, with its arches and multiple small joints, and the part the arches and joints play in the functions of bearing the body weight and of locomotion The mechanical effect of the high heel, combined with the pointed, stiff and unyielding toe cap, under the influence of the body-weight, should also be demonstrated Surely, with a ittle enlightenment of this kind, the penalties of wearing the "fashionable shoe" would not be so lightly ncurred as in the days of ignorance The demonstrator hould not omit to point out the effects upon a walker up and own hills of high heels and pointed toes Something would gained if the height of the heel could be reduced even to n inch

Physical culture is recognised as a subject of national importance, upon the feet rests the whole superstructure of man's erect form Might not some of the time now devoted to the culture of the superstructure be spared with advantage to the well being of the lowly, hidden feet?

PUBLIC HEALTH IN NIGERIA, 1918

A REPORT on the Blue book for the year 1918, drawn up by the Acting Governor, Mr A G Boyle, C M G, has just been presented to the Imperial Parliament A considerable increase in the number of resident Europeans is noted In the Northern Province it was estimated that there were 939 Europeans at the end of 1918, of whom about 495 were officials In the Colony and Southern Provinces there were 2000 Europeans, about 1250 being officials The native population of the Northern Provinces is estimated at 8 537,369 and of the Southern Provinces and Colony at 7,856,000, a total of about 16 millions The average density in the Northern Provinces would therefore be about 33 to the square mile, and in the Southern Provinces and Colony about 98

Influenza

On the whole the general health of the community in the Southern Provinces in 1918 compared unfavourably with previous years The great pandemic of influenza reached Nigeria towards the end of September raged during October, and declined rather abruptly in November Imported into Lagos by sea from the Gold Coast in spite of unremitting efforts on the part of the sanitary authorities it was but a matter of time till the disease had spread all over the country Calabar was the last to suffer owing to the infrequency of the shipping service between there and ports to windward and the epidemic was at its height there when it had practically died out in Lagos The epidemic did not present any features different from those observed in other parts of the world, unless it was in its severity Gastro-intestinal types were noted but in the great majority of the cases the brunt of the disease fell on the respiratory system All the deaths among the Europeans were due to septic broncho pneumonia It is difficult to estimate either the incidence of the disease or the mortality except in Lagos where there is a properly organised health department and where registration is compulsory In that centre a case incidence of 50 per cent, with a mortality of 5 per cent, would probably be a low estimate Among the poor and intensely ignorant both the incidence and mortality must have been very much higher It is estimated from the Register of Deaths and a comparison of the death rate during the epidemic with the same periods in previous years, that 1 5 per cent of the population of Lagos died of influenza

Other Diseases.

Amongst the native population the most prevalent diseases excluding influenza, were affections of the digestive and respiratory systems, infective diseases and rheumatic and skin affections Anæmia is responsible for a great deal of ill health and invaliding Gout among both Europeans and natives is fairly common There were only 9506 cases of malaria in 1918 as compared with 11 804 in 1917 Two cases of yellow fever occurred, one European and one native both were fatal One case of trypanosomiasis was treated at Ibadan and one at Lagos, the Ibadan case was imported from the Northern Provinces whilst the Lagos case was an old one which had been under treatment in England There were 29 cases of blackwater fever in Europeans with 4 deaths the native had this disease and recovered 2231 cases of chicken pox which is endemic and from time to time epidemic were recorded with 10 deaths—a high rate of mortality for this disease There were 439 cases of small pox, with 74 deaths or a case mortality of 168 0 per 1000 Nothing approaching a serious outbreak of the disease occurred The incidence of small pox is principally confined to the dry season Dysentery is for the most part of the amœbic variety Among Europeans the case incidence was practically the same as in the previous year 40 cases were recorded, but this gives a low estimate of the number who are carriers of the amœba Emetine and Alcresta ipecac have given good results in the treatment Amongst natives 920 cases were recorded with a mortality of 16 3 per cent, as against 1059 with a mortality of 11 2 per cent in 1917

A DEMONSTRATION OF ARTIFICIAL LIGHT LIMBS

WE drew attention in an annotation published in our issue of June 12th to the interesting medical sections of the exhibits (Army, Naval, and Air Forces) now on view at the Imperial War Museum at the Crystal Palace Amongst other things claiming special notice is the exhibit of light legs in the Army Medical and Red Cross Section of the Museum, shown under the auspices of that worthy institution, "The Disabled Society" The object of this society is to ensure that the best type of artificial limb shall be brought within the reach of all ranks It is pointed out that it was early evident that the heavy wooden limbs needing harness over the chest and shoulders made the task of the wounded man a heavy one, and it is now established that with a light clean limb simply attached with a pelvic band a man may regain practically all his previous activity, and not only earn his living in most occupations, but enjoy games and sport without undue fatigue Lieutenant General Edward Bethune expresses the hope that, pending the adoption by the authorities of a standard light limb, such appliances will be encouraged and find a place on the market Meantime the society announces that any information in their possession is freely at the service of anyone requiring such information, and the evidence of actual wearers of these limbs is available The activities of the Disabled Society are recorded from time to time in a publication known as "The Ex Service Man" The temporary address of the society is 123, Church street, Chelsea, S W 3 The organisation should arouse wide sympathy and substantial support.

WOMEN'S HOLIDAY FUND.

THE object of this fund, which began its work in 1895, is to help the London working woman to have a week or a fortnight's holiday by the sea or in the country. In spite of higher wages there are many who have to spend their weekly money on the bare necessities of life, and have no margin left for holidays. Help is needed specially for the woman dependent on her own exertions for her livelihood, and for the mothers of large families.

All applicants pay as much as they can towards their expenses, but the society has to meet about two-thirds of the total cost. Donations should be sent to the Secretary of the Women's Holiday Fund, 76, Denison House, 296, Vauxhall Bridge-road, S.W. 1.

EASTERN AND WESTERN MEDICINE.

AT the last meeting of the Madras Legislative Council heated discussion centred round a resolution which recommended the appointment of a committee for the investigation and encouragement of Ayurvedic and Unani systems of medicine now in vogue in the Presidency. In moving the resolution an Indian councillor said that the depreciation of the Ayurvedic system of medicine was quite unwarranted. The Ayurvedic system was just as scientific as the Western system of medicine. The medical aid provided by Government to taxpayers was totally inadequate. The speaker declared that, in his opinion, in cases of snake-bite and rabies the Western treatment failed, while the Eastern, to his knowledge, succeeded.

THE CHARACTERISTICS OF THE ULSTERMAN.

Sir John Byers has written an interesting and topical pamphlet with this title. The study of character and temperament is no less important to the doctor than it is to the statesman who at the present juncture may find help in the solution of difficult problems by a perusal of Sir John Byers's anecdotal study. As the author points out, in no part of the British empire have there been so many different races in various periods as in Ulster, while the province differs from the rest of Ireland in its physical aspects. Reticent and parsimonious in the use of words, unless he is sure of their effect, the Ulsterman, even in sickness, does not care to waste his breath. An instance is given of a hospital patient who never spoke for a fortnight save by *pointing and nodding*. When roused, however, the Ulsterman can speak with passion, quickness, and alertness, and is stern, dogged, and unyielding. His suspicion of compliments is indicated by the saying, "He's a dale too sweet to be wholesome." Industry, enterprise, and perseverance, with much "judition"—i.e., sound judgment—are also characteristics, in accordance with Sir John Byers's summary.

THE WELFARE OF THE PROFESSION AND THE COUNTRY.

To the Editor of THE LANCET.

SIR,—The recent resolution of the Insurance Commissioners to pay mileage *from the doctor's residence* rather than from the nearest doctor seems detrimental to both, since it may lead to an immense usage of transport material—motors, carriages, coachmen, chauffeurs, &c. All doctors are qualified and presumably equally able. The idea that an individual of the public may have that one doctor, however distant he may be, alone understands his case, is, except in very special instances, illusory; in fact, pure imagination. As to the immense amount, perhaps, to be used in extra transport, will it not be wasted? Would not the country be richer were such an amount saved? Can the country afford waste at the present time? The doctor during the long hours of the passive inactivity of transport in all weathers cannot expect to have a healthy time of it. I suppose it will mean shortening of his life, and his advice—well, I would rather have it from a healthily employed man. Legislative wisdom might perhaps travel on the lines of confining the people to the nearest doctor, like in rural districts the people often go the nearest place of worship, and treating them otherwise as having luxuries—taxable luxuries of mileage to pay. The doctors then might be fully employed, many more living in country parts than now, and mostly able to get through their work on their feet healthily.

I am, Sir, yours faithfully,

W. P. D.

June 4th, 1920.

"THE ROTTEN MEDICAL PROFESSION."

UNDER the above title we have received from a serious correspondent this letter for publication:—

> The country is quite glutted with persons holding medical qualifications, yet competent doctors were never more difficult to find. Only about 10 per cent. of doctors are trained up to the point of being able to perform operations or set broken bones.
>
> Third- and fourth-rate medical schools enrol students (for the sake of the fees) in numbers far in excess of the clinical material available for their training. These inefficients become club doctors, panel doctors, sixpenny doctors, and so forth. Much time and money is wasted before patients can find a doctor competent to deal with their case.
>
> Stringent "State" regulations should ensure that every medical student obtain the opportunity of an efficient training up to being able to perform operations, no favoured students being allowed in the hospitals after the other students have been dismissed.
>
> A single "State" qualification ought to replace the many useless diplomas at present in vogue, and the holder's possession of it should be unassailable and absolute. By virtue of being qualified alone, every medical person should automatically become a member of the staff of the hospital serving the district in which he or she is a permanent resident.
>
> No medical panel should be allowed to be sold, and a triennial dissolution of all panels should be enforced to give new beginners a chance. The system enabling rings of doctors to keep the appointments amongst them ought to be abolished, one medical man one medical appointment only.

The writer, we feel sure, believes every word of what he has written, having taken what he would term his facts from gossip. He does not know the need for doctors, but repeats the old story of a glut. He does not know of the standardising work of the General Medical Council in education. He seems not to know that there are difficulties in the institution of a one-portal system *which could only* be removed by legislation. We recommend our correspondent to read the Interim Report of the Consultative Council on Medical and Allied Sciences, and to see what is there *projected for giving the general* practitioner opportunities for the best scientific work.

BOOKS, ETC., RECEIVED.

ALLAN, PHILIP, AND CO., London.
- A Concise Chronicle of Events of the Great War. By Captain R. P. P. Rowe. Pp. 344. 10*s.* 6*d.*
- Toasts, Rakes, and Cits. By Sir Richard Steele, Joseph Addison, *and others.* (The Pilgrim's Books.) Pp. 256. 5*s.*

BELL, G., AND SONS, London.
- Intermediate Text-book of Chemistry. By A. Smith (Columbia University). Pp. 520. 8*s.* 6*d.*

BUTTERWORTH AND CO., London, India, Australia, and Canada.
- Syphilis in General Practice, with Special Reference to the Tropics. By K. K. Chatterji, F.R.C.S.I. With Introduction by W. D. Sutherland, I.M.S. Pp. 382. Rs.15.

GREEN, W., AND SONS, Edinburgh.
- Rheumatism and Arthritis. By Prof. R. Stockman, M.D. Pp. 132. 15*s.*

GRIFFIN, CHARLES, AND CO., London.
- Introduction to Midwifery. By A. Donald, M.D. 8th ed., revis Pp. 192. 6*s.*

HEINEMANN, WILLIAM, London.
- The Mental Hygiene of Childhood. By W. A. White. Pp. 194.

"LA MEDECINE," 21, Boulevard St. Germain, Paris.
- Condensed Milk. By Dr. P. Lassablière. Pp. 84.

LIBRAIRE FELIX ALCAN, Paris.
- Traumatismes Cranio-Cérébraux. Par Prof. H. Duret. Pp. 1 Fr.75.

LIVINGSTONE, E. AND S., Edinburgh.
- Handbook of Diseases of the Nose, Throat, and Ear for Stude and Practitioners. By W. S. Syme, M.D. Pp. 329. 9*s.*

LONGMANS, GREEN, AND CO., London.
- Anatomy, Descriptive and Applied. By Henry Gray, F.R 21st ed. Edited by Prof. R. Howden, M.B., D.Sc. Notes Applied Anatomy, revised by Dr. A. J. Jex-Blake and J. Cl F.R.C.S. Pp. 1366. 42*s.*

MASSON ET CIE, Paris.
- L'Infection Bacillaire et la Tuberculose chez l'Homme et cl les Animaux. Par A. Calmette, Sous-Directeur de l'Insti Pasteur de Paris. Pp. 620. Fr.55.

METHUEN AND CO., London.
- The Mammary Apparatus of the Mammalia in the Light Ontogenesis and Phylogenesis. By Prof. E. Bresslau, M With Note by Prof. J. P. Hill, D.Sc. Pp. 145. 7*s.* 6*d.*

MILFORD, HUMPHREY, London.
- Dodi Ne-Nechdi (Uncle and Nephew). The work of Berach Hanakdan. Now edited from MSS. at Munich and Oxford, w an English translation, introduction, &c., to which is added t first English translation from the Latin of Adelard of Bat Questiones Naturales. By Prof. Hermann Gollancz, M. D. Litt. Pp. 161. Hebrew text 60. 21*s.*

PEARSON, C. A., London.
- Diary of a Police Surgeon. By Graham Grant, Lieutenant-Colon R.A.M.C. T. Pp. 188. 3*s.* 6*d.*

ROUTLEDGE, GEORGE, AND SONS, London.
- The Social Diseases: Tuberculosis, Syphilis, Alcoholism, Sterili By Dr. J. Héricourt. Translated, and with a final Chapt entitled the Social Maladies in England, by Bernard Mis Pp. 246. 7*s.* 6*d.*

SCIENTIFIC PRESS, London.
- The Conquest of Venereal Diseases. By Charles Russ, M. Pp. 16. 1*s.*

THACKER, SPINK, AND CO., Calcutta and London.
- Clinical Methods for Students in Tropical Medicine. By Lieu Col. G. T. Birdwood, I.M.S., and others. 3rd ed. Pp. 3 Rs.7.8.

THIEME, GEORG, Leipzig.
- Diätetik der Magenund Darmkrankheiten. Von Prof. Dr. Boas. Pp. 216.

UNIVERSITY OF LONDON PRESS, London.
- Animal Experiments and Surgery. By W. G. Spencer, M. Pp. 179. 6*s.*

VOGEL, F. C., Leipzig.
- Lehrbuch der Chirurgie. Von Prof. Dr. Carl Garrè und Pr Dr. A. Borchard. Pp. 695. M.38.

WRIGHT, J., AND SONS, Bristol. (SIMPKIN, MARSHALL, London.)
- The Medical Annual, 1920. Pp. 498. 15*s.*

Hunterian Lecture

ON

THE INFLUENCE OF NERVE IMPULSES ON VISCERAL DISORDERS.

Delivered at the Royal College of Surgeons of England on Feb. 9th, 1920,

By H. TYRRELL GRAY, M.A., M.C. Cantab., F.R C.S. Eng.,

SURGEON TO OUT PATIENTS, WEST LONDON HOSPITAL SURGEON TO HOSPITAL FOR SICK CHILDREN, GREAT ORMOND STREET, AND TO THE ITALIAN HOSPITAL, HUNTERIAN PROFESSOR (LATE ARRIS AND GALE LECTURER), ROYAL COLLEGE OF SURGEONS OF ENGLAND

(Concluded from p 1304)

COLOPEXY.

THIS study embraces a series of 123 cases, in which fixation, partial or "complete," was performed in 106 Since my experiments on shock I started out with the hypothesis that mesenteric inhibitory nerves could be stimulated by mechanical traction Experimental evidence supported such a view, and it is not surprising that visceral disorders should have been approached from this standpoint. The relief of such a strain by a normal anchorage of the bowel would clearly cure the symptoms, provided secondary lesions were not too firmly established Accordingly, I have during the last eight or nine years practised various operations for fixation of the cæcum, ascending and transverse colon, being originally led to do so after reading a report of Wilms's paper on *cæcum mobile* (published in 1904)

In order to facilitate a detailed analysis I have divided these cases primarily into two main groups according to the situation of the chief mesenteric strain · (A) tension on the ileo cæcal and ileo colic mesentery, (B) tension on the transverse mesocolon Thus, A arises in excessive mobility of the cæcum and ascending colon; and B when there is marked proptosis of the transverse colon A and B may exist together in general viceroptosis In all these fixation operations the object has been the transference of an excessive mesenteric strain to a region which is innocuous

A. *Cæcopexy and Ascending Colopexy*

From the first I have never performed Wilms's "pocket operation, but have always attempted to reproduce as accurately as possible the normal result of mesenteric fusion Depending on whether the cæcum alone or the cæcum and ascending colon is to be fixed, I *open the peritoneum of the posterior wall and iliac fossa about* ½in external to the line of the mesenteric attachment, from a point just short of the brim of the pelvis as far up as necessary (Fig 4 (A–B) and Fig 6 (X–X')) The suture of the internal cut edge of the peritoneum to the postero internal aspect of the cæcum is commenced at and includes the *meso-cæcum (in order to obviate the* possibility of internal hernia) The sutures are continued downwards, the apex of the cæcum being sutured to the lowest point of the peritoneal incision From this point upwards to the upper extremity of the peritoneal incision the cut edge is sutured to the external *tænia muscularis All sutures should include the muscular* wall of the bowel The cæcum and ascending colon are thus rendered extra peritoneal in their posterior aspect over the required area That such an attachment proves permanent I have twice had the opportunity of establishing, once in a case I operated *upon again a long time afterwards,* and *once at an* autopsy after accidental death from coal gas poisoning

Of 53 cases, no fixation was performed in 7, of which 3 were not operated upon at all, and the only one of these I can trace is relieved by corsets, but still suffers pain Of the remaining 4 cases, 3 have been traced, 2 are *cured,* and the *other has* had a recurrence of pain This leaves 46 cases on whom fixation of cæcum or cæcum and ascending colon was performed Of these I have not been able to satisfy myself, either by letter or personal interview, of the late results in 13, some of which were operated on a good many *years ago I have thus a series of* 33 cases in which the end results can be traced over a varying number of years and in 2 of these (though I have no news of them lately) the result was entirely satisfactory *for a* long time after the operation

The figures for this series —

Cured	78 7%	—i e 84% satisfactory
Improved	6 0%	
Failed	9 0%	—i e , 15% failures
Symptoms recurred (after some time)	6 0%	

With regard to the failures I have made careful investigation and will discuss them in a moment, but it is clear that little can be learnt from the percentage of successes alone The figures agree in the main with those given by Wilms (75 per cent cures), but the details are instructive and deserve some elaboration The groups of symptoms for which this operation has been performed are three

(1) *Recurrent acute attacks of pain* resembling acute appendicitis, but unaccompanied by *any marked rise of temperature and pulse* rate and other constitutional evidence of acute inflammation The attacks usually last a few hours only and clear up rapidly, leaving the patient little beyond a sore, bruised feeling locally During the attack and to a less extent for a few days afterwards there is a *fullness and tenderness in the right iliac fossa,* which *is a little* guarded against deep palpation This is due to marked distension of the cæcum, which can be emptied with a definite gurgling sound Between the attacks the existence of a distended, gurgling, and prolapsed cæcum is easily demonstrated, clinically or by X rays

There is no doubt that Wilms s explanation of these attacks is true in a certain proportion but not in all I am sure that in some they are due to limited volvulus of the cæcum the twist being external and the obstruction partial Of this there is distinct evidence in two of my cases (*a*) The cæcum was found large and *freely* mobile, and twisted externally so that the ileo-cæcal valve was situated *antero-externally Fixation of cæcum in its proper* position resulted in a cure (*b*) The cæcum was externally rotated, the retro-cæcal appendix was lying anteriorly, and the terminal ileum passed across the cæcum and appendix to enter the former in its external aspect A Lane s kink was present, somewhat remote *from* the *ileo-cæcal* valve, around which, I think, the *rotation had* taken place A plastic lengthening of the Lane s kink, appendicectomy, and cæcopexy resulted in a cure Lane s kink was present in four of this series and was dealt with in the manner already described, one was further complicated by an extensive Jackson s membrane Two were cured and two were failures, which I shall refer to later A Lane s kink will contribute to inhibitory distension as already shown, and is thus an additional factor in the causation of acute attacks, while these may clearly be accentuated in severity by the pull on a *Jackson s* membrane Operation was undertaken in 18 instances for such acute attacks (1 resembled a gastric *ulcer, and* 17, *acute appendicitis),* the latter figure, therefore, represents 51 per cent of the series Of these 88 per cent were complete cures Two failed to produce complete cure In five instances symptoms were accompanied by vomiting, three were cured

(2) *Chronic right sided dragging pain* —This is a mechanical result *of* the *drag of* an inhibited mobile cæcum and ascending colon on the peritoneum, mesentery, and kidney, and it is associated with varying degrees of right renal mobility (Fig 6) It is this class of case for which nephropexy was so often practised, with such poor results in past years When associated dyspeptic symptoms are present (3) these are attributable to the drag on the terminal ileal and *ileo-colic mesentery, produced* by the *prolapsed* cæcum in the erect posture (Fig 6), and the mechanism is similar to that already referred to in the case of the Lane s kink and the controlling appendix (See Group (3)) Reflex gastro-intestinal inhibition also occurs from the afferent sympathetic stimulus *induced by the drag on the right renal pedicle* It is particularly instructive to note that, whereas in the 21 per cent of cases where chronic dyspeptic symptoms (e g , nausea, flatulence, and distension) were complained of, 85 per cent were cured, when the chief symptom was a right-sided draggin [illegible] 4 per cent) a cure was *only established in 62 per cent , two cases recurring after apparent* cure

(3) *Chronic dyspeptic symptoms* have already been referred to, and may accompany either of the former class of case Cures in 21 per cent of cases were 85 per cent This supports the view that the drag of the bowel stimulated the mesenteric nerves of the ileo-colic *mesentery and (in (2)) the renal pedicle* Further *support* will, I think, be obtained from X ray examination For I have observed that in well marked visceroptosis, where ileal stasis is associated with marked delay in the ascending colon, the peristaltic waves in the terminal ileum are very obvious in the recumbent position, but are *sometimes much less evident and more difficult to follow in the* erect posture I have not, however, examined sufficiently often to be sure on this point It is evident from this analysis that the largest percentage of cures from cæcopexy are obtained either when acute attacks of pain (88 per cent) or chronic dyspeptic *symptoms (85 per cent) are the prominent features*

The smallest percentage of cures result when the operation is undertaken for chronic right-sided dragging pain, and the reason is apparent from a study of the failures

Failures (9 per cent) —In two of the failures present symptoms point to the origin of these as part of a general visceroptosis In one *gastric symptoms* were very well *marked,* and it was evidently a mistake on my part to expect the remedy of an advanced general condition by a purely local procedure like cæcopexy This patient says she is a little better In the other case cæcopexy was only *performed during operation for a supposed recurrent appendicitis*

Recurrences (two cases) —*These* are both *instructive Both complained of chronic right sided dragging* pain in the erect position as the prominent feature In both the cæcum alone was fixed In one case a Lane s kink was remedied, and a cure, lasting for 18 months, was followed by a relapse to the pre-operative condition In the *other* a Lane s kink *was remedied, and a well marked* Jackson s membrane was left untouched cæcopexy only was performed A cure lasted until parturition, when the old symptoms gradually returned, clearly owing to diminished support

Cæcopexy and ascending colopexy —It is interesting to note that in this series the ascending colon was also *fixed in eight cases for all groups of symptoms* One was complicated by gall stones, which I do not think were responsible for the symptoms complained of This operation resulted in 87 5 per cent of cures, one (improved) has occasional attacks of indigestion These figures, small as they are, afford a clear indication of the *reason for these two recurrences* and the means of avoiding them—i e , *if* the prolapsed cæcum is dragging on the ileal mesentery alone the resulting inhibition will cause attacks of acute distension (resembling appendicitis), associated with reflex gastric symptoms of mild or intermittent type (Fig 3) Here cæcopexy is sufficient, and will effect a permanent cure Symptoms associated with right sided dragging are an indication that the right-sided prolapse is more general and is involving the kidney, accordingly, fixation of the ascending colon also is called for (Fig 6) This inference is supported by the good results *of ascending colopexy in the subsequent series,* and when performed as an adjunct to other operations

Constipation —This was a prominent feature in 27 per cent of cases and in these 77 per cent were cured It was not a marked symptom or only present during acute attacks in 72 per cent , and in this series 83 per cent *were cured It would appear that these* were early cases

Reverting to the original total figures for a moment. In the 78·7 per cent. of cases reported in the whole series I find that 5 were complicated by other lesions, which were remedied at the same time. In two a Lane's kink was remedied; one had a controlling appendix, which was removed; one had gall-stones, as already stated; and in one instance I performed a simultaneous suspension of the uterus by shortening the round ligaments in the usual manner. None of these complications materially affect the argument.

Sex.—Finally, it is of interest to note, in view of subsequent remarks, that only three of this series were males, but all were cured.

Before deducing the lessons to be learnt from a study of this series there is one other condition in which cæcopexy and ascending colopexy is called for—namely, when the large intestine is supported by bands attached to the neighbourhood of the gall-bladder. The effect of these bands I believe to be, as already stated, largely mechanical. Their attachment below to the first part of the transverse colon, with its mesocolon, I shall refer to in the next series; but, when they support the cæcum and ascending colon by attachment to their external and antero-external surfaces (a fairly common condition), cæcopexy and ascending colopexy is called for to relieve the drag, and has proved entirely successful.

In one such case the symptoms were extreme constipation (steadily progressive for six years) and chronic dyspepsia of a pronounced type. A Lane's kink was remedied, a normal appendix removed, and the cæcum and ascending colon fixed. The result is a complete cure after nearly four years.

I have already reported 7 cases of mobile cæcum in which no fixation was practised; and in order to strengthen the case, I wrote to 22 patients whose appendices I had removed in past years for supposed chronic appendicitis, and in whom I was doubtful whether kinking, twisting, or other slight lesions of the appendix could satisfactorily account for the symptoms. I received 15 replies: 6 are reported cured (40 per cent.); 4 are reported improved (26 per cent.); 5 are reported in statu quo (33 per cent.). Of the 4 who were improved, in 2 a mobile cæcum was noted but not fixed, and the other 2 still complain of pain in the right iliac fossa. Of the 5 cases reported in statu quo, one has "the same indigestion"; another is under treatment for "duodenal ulcer"; while the third has subsequently proved to have been a case of "enteroptosis," and will be referred to later.

The completion of my evidence is afforded by three cases in the series which deserve special mention—all were females: (*a*) Appendix removed at another hospital—still complaining of pain on the right side. X rays showed marked gastric and ileal stasis. Cæcopexy over five years ago. "Cured." (*b*) Treated for "indigestion," "liver," "ulcer," and "gall-stones" at various times and places. Previous operation for division of adhesions between the stomach and gall-bladder gave no relief. Removal of an apparently healthy appendix and cæcopexy over six years ago. "Cured." (*c*) Dragging pain on the right side, nausea, and dyspeptic symptoms. Appendix removed at another hospital. No relief. Cæcopexy six and a half years ago. "Cured." These three failures added to my own just related are evidence in favour of the value of this simple procedure in properly selected cases.

It is possible that in some few instances a chance cure may result from the formation of post-operative adhesions exactly when they are required, though in the absence of sepsis they are apt to be too filmy and weak to provide the necessary support to relieve tension on the ileo-cæcal mesenteric nerves. Finally, stagnation of contents predisposes to acute appendicitis, which should presumably occur, in a fair proportion of cæca which are inhibited from excessive prolapse. Theoretically, the density of the resulting adhesions should suffice to fix a prolapsed cæcum; and in order to ascertain any possible evidence of this, I wrote to a series of cases in which I had drained the abdomen for acute appendicitis. In practically all drainage was established by one tube to the right kidney pouch and another to the pelvis, after appendicectomy. I received replies from 70 patients. One complained of abdominal pain, one of "bowel trouble," and one of "pain on lifting." The remainder (95·6 per cent.) are cured. It is probable that many of the cæca of these patients were mobile, and the figures contrast favourably with those of the doubtful cases of chronic appendicitis just mentioned. Is this not another small point in favour of fixation of a mobile cæcum?

The main points arising out of a study of these cases appear to be as follows: Mobility of the cæcum and ascending colon is a congenital condition showing a variability only to be expected in a transitional organ undergoing evolution for the purpose of adaptation to the erect position and to food requirements.

Two types are to be noted: (*a*) Mobile cæcum as part of a general mobility of the ascending colon (or transverse colon also) due to failure of the normal process of mesenteric fusion—i.e., a type transitional between complete mobility and perfect fixation. (*b*) Elongated cæcum, when mesenteric fusion is advanced and no signs of general mobility are evident. Here the prolapse is mainly due to an elongation below the ileo-cæcal valve. It is hard to adduce evidence that this is not an acquired condition, though I cannot help leaning towards the view that this is a mild reversion to those types in which the long cæcum and appendix function as a propelling organ for the large intestine. (If fixation be attempted in this group it will be found that there is no room to anchor the cæcum in the iliac fossa, as mesenteric fusion is continued nearly to the pelvic brim. In the few cases I have operated on (and I do not think they are very common) I have fixed the ascending colon also after shunting the whole cæcum and ascending colon upwards, thus allowing room to obtain a retro-peritoneal attachment for the cæcum.)

Cæcum mobile is compatible with perfect health and may never give rise to symptoms. Symptoms are liable to be initiated by any factor tending to increase the normal tension on its mesentery, such primary factors being divided into two groups: (*a*) Diminution of the natural extrinsic supports of a normal viscus; or (*b*) abnormal overloading of a viscus whose extrinsic supports are intact.

Group (*a*) refers, of course, to the support of the abdominal wall and pelvic floor, which may be, and sometimes is, the initial factor in the final descent which gives rise to tension on the mesenteric nerves.

Group (*b*) may arise from any lesion inhibiting the ileo-cæcal area and leading to stasis and overloading (e.g., acute appendicitis, controlling appendix, Lane's kink, &c.). It may arise from general inhibition of the colon, due to more widespread intra-abdominal lesions, mental influence on intestinal activity, dyschezia, &c., the importance of which will be referred to later.

The end-result of both groups is a relative increase in tension in the ileo-cæcal mesentery, consequent active inhibition of the ileo-cæcal area, and the reflex gastro-intestinal inhibition responsible for the symptom-complex already discussed. (Fig. 6.) Thus, a prolapsed cæcum is innocuous until one of these ætiological factors initiates a drag on the mesentery. The extent of the symptoms (*not* the severity) is some indication of the amount of drag caused by the prolapse. On these considerations the indications for treatment are based. Thus, my analysis shows two stages.

(1) *Early prolapse.*—In this stage there is a liability to over-distension from twisting, temporary inhibition, &c., such acute attacks being quickly amenable to treatment in the early stages, but liable to recurrence, especially when associated with a Lane's kink or controlling appendix. In this group the increased mesenteric tension is limited to the ileo-cæcal angle, and constipation is not a prominent feature except in the acute attacks; while reflex dyspeptic symptoms, though sometimes noted, are mild or intermittent. The explanation of the symptoms is analogous to those associated with Lane's kink. (Fig. 6.) In this class of case cæcopexy alone will effect a permanent cure.

(2) *Chronic right-sided dragging pain.*—This may be associated with acute attacks or with marked gastric symptoms. This group is associated with an increased tension on, and stimulation of, the ileo-colic and ileo-cæcal mesenteric nerves (both efferent and afferent). The resulting drag on the kidney further stimulates the afferent sympathetic nerves of the renal pedicle and further contributes towards reflex inhibition; while the same drag is probably responsible for frequency of micturition, especially in the erect posture—i.e., by day. There is therefore a wider area both of efferent and reflex gastro-intestinal inhibition, and these more pronounced and constant symptoms cannot be cured by cæcopexy alone. In such cases the ascending colon must also be fixed, and this is particularly called for if frequency of micturition is a prominent symptom. Nephropexy alone invites failure.

Again, the presence of a well-marked Jackson's membrane is an indication for fixation of the ascending colon as well as the cæcum. For much of the pain is caused by the drag on its attachment to the lateral peritoneum. If this is done the membrane is, of necessity, divided; while recurrence is prevented by the normal fixation of the bowel. Had I done this in my second recurrence I do not think pain would have reappeared from failure of abdominal support after childbirth.

Finally, cæcopexy alone, or combined with ascending colopexy, will only result in a cure (when these are the primary factors concerned) if the effects of secondary inhibition elsewhere—i.e., transverse colon, stomach, &c.—have not resulted in gross changes in these situations which are too far advanced to be remedied by attention to the primary factor only.

I submit that the cure of symptoms in these cases was due to a transference of the pathological strain on the ileo-cæcal and ileo-colic mesenteries (and the renal pedicle) to the innocuous extra-peritoneal tissue of the posterior abdominal wall.

B. *Strain on the Transverse Mesocolon: "General Visceroptosis."*

An increase of tension on the transverse mesocolon may arise from any of the causes of overloading the bowel or a diminution of the abdominal or pelvic support. It may thus be due to secondary inhibition from ileo-cæcal lesions, cæcal prolapse, neglect of defæcation, and a host of other agencies.

The effects are several, amongst the most prominent being: (*a*) Stimulation of efferent mesocolic nerves leading to inhibition of the transverse colon and an increased tension from overloading. (*b*) Stimulation of most of the efferent nerves entering the mesentery of the small intestine, leading to generalised inhibition. (*c*) Stimulation of afferent sympathetic nerves leading to: (1) generalised sympathetic stimulation, with its widespread effects; (2) reflex sympathetic inhibition of the stomach, gall-bladder, &c., which will be considered later.

In this group are 73 cases (naturally of a more severe type) where classical symptoms of marked general visceroptosis were present. (In a very few fixation was only performed to prevent a recurrence of adhesions occurring in undesirable situations.) In all but 11 some form of colopexy was performed, either alone or in conjunction with other procedures.

In these 11 cases, though marked visceroptosis was noted, no fixation was practised for various reasons. The results a varying number of years later are interesting. None report themselves as complete cures; 7 are improved—2 being greatly improved; and in 2 the operation was not a success. In 6 of these cases the operation performed was gastro-enterostomy, which, even in the presence of an obvious pyloric ulcer, does not seem to have cured, but only to have afforded considerable relief.

Fixation, partial or "complete," was performed in 62 cases, of which 2 were operated on comparatively recently, and are therefore of no value in a study of results. Of the remaining 60 fixation cases 2 died—one was the case (already reported) of a little girl with a mesentery to the whole large bowel, on whom I operated during acute obstruction, due to a complete volvulus of the whole intestine, both large and small. This was an emergency operation. The other, whose urine was normal before operation, had a simple fixation performed; the same evening she passed blood in the urine, which became solid with albumin, and she developed a rapid suppression, from which she died three or four days later.

The risk of these fixation operations (as in the cases of the previous group, where there was no death) is therefore negligible.

Five cases cannot be traced to date, and of these one was cured when heard of some time after operation. Five further cases are of rather recent date (i.e., within five or six months), though they can no longer be regarded as convalescent. This leaves me 49 cases, extending over six or seven years, in whom the result of operation can be estimated with fairness. In these 49 cases the operations performed were either: (*a*) Cæcopexy or cæcopexy with ascending colopexy; (*b*) transverse colopexy (Coffey's operation); (*c*) "complete' colopexy (i.e., (a) and (b) combined). These were either the sole procedures adopted (appendicectomy excluded) or formed an adjunct to an operation undertaken for another object (i.e., gall-stones, gastro-enterostomy, &c.).

A general survey of the results shows that of these 49 cases 61 per cent. were cured, 26.5 per cent. were improved considerably, and 12 per cent. were failures. This represents satisfactory results in 87.7 per cent. of cases. I have classed amongst the failures two patients who, from the reports received to date, have improved since the operation (performed 18 months and 2 years ago respectively). But I have classed these as failures because I am not satisfied as to the extent to which the operation is responsible. I shall consider the failures later.

Amongst the cases cured constipation was noted as a pronounced feature in 46.6 per cent., of which adhesions after suppurative appendicitis complicated one, and lesions of the appendix were noted in two. Constipation was very marked in 4 cases and was extremely obstinate in 3. Passage of mucus was complained of in one instance.

Amongst the cases relieved by operation constipation was a prominent feature in 61.5 per cent. Of these, it was very marked in 6 and extremely obstinate in 1; this last was operated on three years ago and now requires no medicine to make her bowels act.

Sex.—It is, again, interesting to note that in this whole series there are only 10 males. Of these 7 had colopexy performed, with 100 per cent. cures.

These figures, however, afford only a general impression, since other factors obscure the results in some of the series. Thus, mesenteric bands from the neighbourhood of the gall-bladder, pylorus, or duodenum to the ascending or first part of the transverse colon were noted in 16 cases associated with—

	Cases		Cases
Lane's kink	2	Duodenal ulcer (to which the band was directly attached)	1
Controlling appendix	1		
Jackson's membrane	3		

In the whole series of 17 cases in which fixation was practised are noted—

	Cases		Cases
Controlling appendix	3	Inflammatory adhesions	2
Jackson's membrane	3*	Appendix removed previously	4
Lane's kink	5		

* Vide supra.

Fixation was combined with gastro-enterostomy in 22 cases (in one of which the gastro-enterostomy had been performed previously), hysterectomy in 1 case, enucleation of uterine fibroids in 1 case, removal of ovarian cyst in 1 case.

Therefore, as a closer analysis is essential to a just estimate of the value of such operations, I propose to subdivide the study of this series into groups.

(a) *Transverse colopexy (Coffey's operation).*—This operation was advocated by Coffey, of Oregon, about 18 years ago, as a means of supporting the prolapsed stomach by forming a "hammock." It is exceedingly simple, and consists of suturing the transverse mesocolon to the anterior abdominal wall. There are a few points of importance to be noted in the operation. 1. To avoid the vessels (and associated nerves) of the mesocolon by using the reverse end of the needle in passing the sutures from above downwards. 2. To take up all the layers of the omentum and mesocolon in the sutures and to place them about midway between the stomach and colon. If unusually redundant the mesocolon may with advantage be pleated in order to obtain a larger surface of attachment. 3. The sutures should be passed at least through peritoneum and fascia of the anterior abdominal wall (not peritoneum only). 4. Distortion should be avoided by placing the sutures from the mesocolon to the anterior abdominal wall in the vertical and transverse planes in which they naturally lie in the recumbent posture, thus forming in the transverse plane a gentle curve downwards from left to right, and corresponding roughly with the direction of the normal transverse colon.

Some seven or eight years ago I had the opportunity, through the kindness of Sir Berkeley Moynihan, of talking to Coffey about his operation and hearing him lecture upon it. His enthusiasm and conviction were responsible for my giving it a trial in a few pronounced cases. Since that time I have practised it alone or combined with right-sided fixation or as an adjunct to other operations. Originally I believed with Coffey that it was a mechanical measure designed to correct a mechanical defect, and I employed it as an attempt to remedy symptoms which Sir Arbuthnot Lane originally described as due to the traction of the colon on the stomach.

Criticisms of Coffey's suspension have, in the main, concentrated on the objection that such a fixation is not permanent, and that the transverse colon again drops in the course of time. This criticism is a perfectly just one in so far as the position of the colon is concerned; indeed, I do not think the operation appreciably raises the colon in the abdomen at all, or, if it does, only to a small extent.

One fact I have verified—namely, that some years after transverse colopexy a pronounced prolapse of the colon may co-exist with a complete cure of the original obstinate constipation. The view as to the purely mechanical object and mechanical effect of this operation I have therefore abandoned; for in what manner can the actual position of the colon in the abdomen, *per se*, influence its proper function, if the neuromuscular mechanism is intact?

On the other hand, I have had an opportunity of verifying the fact that the fixation of the mesocolon to the abdominal wall is permanent, and divides the abdomen into two compartments. One of my cases developed accidental obstruction of the small intestine from a band about a year after transverse colopexy, and I noted that the fixation was in perfect order. He is completely cured to-day.

My next step is to produce evidence to show that the effect of the operation is to relieve the strain on the transverse mesocolon by transferring it largely or entirely on to the anterior abdominal wall, thus removing a constant traction on and consequent stimulation of the nerves issuing from or conducted to the solar plexus (Fig. 7 (B-B′)). If such a stimulation produces direct efferent inhibition of the transverse colon, and, to a less extent, of the small intestine (and a similar reflex inhibition of a widespread character), the removal of such a sympathetic stimulus, by transferring the strain elsewhere, should result both in an improvement in the motor functions of the colon (provided its neuromuscular tissue is not secondarily damaged beyond recovery), as well as a cure of the reflex secondary conditions which may have been established. It is from this point of view rather than any purely mechanical aspect, that I am anxious to submit my results.

FIG. 7.

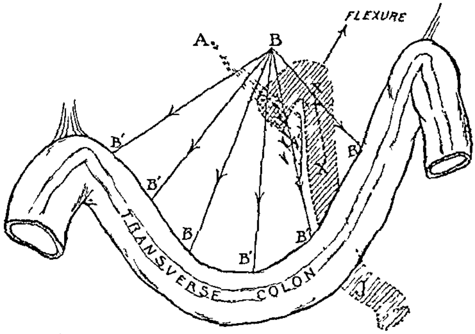

Diagram of efferent inhibition of transverse colon and jejunum in visceroptosis from tension on nerve fibres. A-A, Jejunal inhibition from stimulation of jejunal mesenteric efferent sympathetic fibres. B-B′, Inhibition of colon from similar efferent stimulation. J, Jejunum. X-X′, Area of adhesion of antimesenteric border of jejunum to transverse mesocolon. (Often seen in marked prolapse.)

Analysis of Cases.

Transverse colopexy alone performed.—I have, unfortunately, been unable to trace the records of more than 10 cases in this group, of which the notes of 2 are useless. Of the remaining 8 cases operated on 5 are cured, 2 are improved, and 1 is a failure after seven years. This represents 62.5 per cent. of cures (satisfactory results in 87.5 per cent.) and 12.5 per cent. of failures in this small series.

The failure is of interest. F., aged 31. Suffering from indigestion, heaviness after food, and an extremely obstinate degree of constipation (the bowels acting about once a week). Symptoms were relieved after the operation, and I lost sight of her until recently. In a case of this severity either complete colopexy should have been performed, or possibly intramural damage, whether primary or secondary, was too far advanced for a cure to result from an operation designed against inhibition alone. In any case, apparently, I failed to grasp the full significance of the symptoms.

Two of these cases, I think, are of sufficient value in support of this operation to deserve individual mention.

(A) F., aged 24. Constipation and abdominal pain, severe in character, gradually localising in the right iliac fossa. Repeated vomiting of large amounts. I explored and removed a practically healthy appendix, but found an enormous stomach lying in the pelvis. The appendix incision was closed and a median exposure of the stomach showed no gross lesion. Transverse colopexy established a permanent cure lasting between six and seven years.

(B) F., aged 22. Epigastric pain severe in character, one and a half hours after food. "Heartburn" and "water brash." Lately pain occurs daily and vomiting is increasingly frequent. An apparently healthy retro-cæcal appendix was removed and no definite evidence of ulcer could be seen. Transverse colopexy only performed, six and a half years ago. She is cured up to the present time.

Of these 8 cases, gastric symptoms were prominent features in all but only very severe in 3 cases. Constipation was a marked feature in 4, of whom 3 were cured. Where bands to the stomach or gall-bladder were noted they were lengthened in the usual manner.

I cannot help feeling it very difficult to attribute the cures in this series to any factor other than the removal of pathological nerve impulses which were disturbing the normal mechanism. On no other grounds that are evident can the improvement in the motor functions of the colon be explained by this operation in those patients who were constipated, particularly when the actual position of the large bowel in the abdomen—in the majority at least—is not materially altered. The severe gastric symptoms in the two cases reported were clearly due to reflex inhibition and pyloric closure. Can the complete cure of these be satisfactorily explained on other grounds than the removal of a pathological reflex? I have looked carefully in all cases for evidence of mechanical traction on the stomach (as evidenced by mesenteric bands, &c.). These are present in the minority of cases only. It cannot surely be held that a powerful viscus like the stomach can be so extensively impaired by a small degree of mechanical traction. Only on two occasions have I observed bands directly attached to the scar of an ulcer.

It is clear that fixation of the transverse mesocolon is of limited value if the reflex inhibition of the stomach arises primarily from an ileo-cæcal (or ileo-colic) stimulus. In this event improvement might possibly result from removing a secondary (or adjuvant) cause of such reflex inhibition, even if a cure did not result. This oversight may have accounted for the two patients who were improved and received definite benefit from the operation, but whom I did not feel justified in classing as cured. It may also have accounted for the failure.

An analysis of the failures in both right-sided and transverse fixation seems to suggest that in a certain proportion of the severer cases undue tension on both ileo-colic mesentery and transverse mesocolon was jointly responsible for the generalised symptoms.

Thus, in one case improved by ascending colopexy in this series there is no doubt that I failed to obtain a complete cure by omitting to combine transverse colopexy. On the other hand, in another instance the gastric symptoms were pronounced enough to have twice given rise to a diagnosis of leaking ulcer by unquestioned authorities. In this case bands from the gall-bladder, pylorus, and duodenum supported the cæcum and ascending colon, and led me to fix the cæcum and ascending colon. At the same time the extreme severity of the gastric symptoms induced me (even in the absence of an evident ulcer) to perform gastro-enterostomy. This patient is completely cured, over two years later, but I am not convinced that a fixation alone would not have achieved a similar result.

I have analysed these results as impartially as I can, and the definite proportion of failures or partial successes has only confirmed my conviction that there is a more severe class where symptoms are caused both by ileo-colic and meso-colic tension combined. In this group the prominence, duration, and constancy of gastric or dyspeptic symptoms (associated with varying degrees of constipation) indicated the advisability of "complete colopexy."

(*b*) *Complete colopexy.*—This consists in a combination of Coffey's transverse colopexy with cæcopexy alone or together with ascending colopexy. There are 22 cases in this series, of which 4 are too recent to be of statistical value. In the majority severe gastric symptoms were the outstanding complaint. I have therefore a series of 18 cases in which the late results are known. Of these 55·5 per cent. are cured, 33 per cent. are improved, and 11 per cent. represents the failures.

Of those improved 2 are so greatly improved as to be practically cured; and I think I should be justified in including them in this class. This would give the following figures: Cured, 66·6 per cent.; 22·2 per cent. improved; or satisfactory results in 88·8 per cent. of cases.

Of the failures, 1 (a girl of 25 years) was constipated to an extraordinary degree, medicines being described as "useless." The operation was only performed two years ago, and I am informed that she is not cured, but that the bowels now act with medicine. I still think there is hope of a cure in this case with time and perseverance.

The second failure is of sufficient interest to be reported in detail.

F., aged 24 (neurotic). Complaining of pain, dyspepsia, nausea, &c., and frequent vomiting. Prolapse of very dilated stomach and large bowel to an extraordinary degree. Her condition was pitiable. Appendicectomy and complete colopexy was performed six years ago. Symptoms were completely relieved, and there was a marked gain in weight and improvement in general conditions. This patient some time after convalescence nursed a sick relative and got run down and tired. Some months later she wrote that she was worse. Since then I have not been able to trace her, but I think this may be an instance of a failure to appreciate the primary factor as psychical. (See Mental Factor.)

Of the cases cured, 2 were complicated by the removal of gall-stones, which seem to have been responsible for symptoms in only 1, a girl of 16 years. In this child 52 gall-stones were removed and complete colopexy was performed, as practically all the large bowel had a long mesentery, the prolapse being extreme. The cure is complete.

In one 11 uterine fibroids were also enucleated and a grossly diseased appendix removed. The appendicectomy probably contributed towards the final cure. Jackson's membrane was well marked in one case.

In this series of cures there is one case of unusual interest.

F., aged 31. "Gastric trouble" for 16 years. Acute epigastric pain, indigestion, and frequent vomiting. Attacks of hæmatemesis. Repeated and persistent courses of medical treatment resulted only in temporary abatement of symptoms, and were invariably followed by recurrence. At operation no gross lesions of the stomach could be found. Complete colopexy was performed seven years ago, and she is cured up to the present time.

Flatulence, distension, nausea, or lassitude were complained of in 66·6 per cent. of cases (1 case of gall-stones excluded), and of these 91 per cent. were cured or definitely relieved in approximately equal proportion. Where such symptoms were absent (6 cases) 5 were cured and 1 is probably a failure (the case of pronounced constipation already reported). Vomiting was an outstanding feature in 5 cases, of which 3 were cured and 1 relieved. Pain (with vomiting as an occasional or frequent accompaniment) was marked in 10 cases—7 were cured, 2 relieved, and 1 was not benefited by operation. Of this 70 per cent. of cures in 1 gall-stones were removed, though symptoms were quite atypical. In 1 the pain was a left-sided "drag." One simulated attacks of acute appendicitis. In 2 the pain was epigastric, and in 2 it simulated gall-stone colic. Constipation was a prominent feature in 10 of the cases in this series (55 per cent.). Of those so affected, 5 are now cured, 4 are improved, and 1 so far is not successful. Of those cured, constipation was pronounced in 3 cases; and in 2 it was extremely obstinate. Of the 4 cases improved, constipation was obstinate in all. In the 1 case classed as a failure (already reported) constipation was very obstinate, but appears to be very slowly improving. Frequency of micturition was a symptom in 6 cases, in 5 by day only, and in 1 both day and night. All were either cured or improved.

There is one feature in this series to which attention may be drawn—namely, the proportion of constipated patients cured or relieved. If the normal action of the colon depends in any way on its actual position in the abdomen these operations cannot have exerted any material influence. For the position of the transverse colon, as a rule, is not materially altered; or, if it is, such an alteration is often not permanent. If, however, the driving power of the colon is diminished through an undue domination of impulses in one group of its dual nerve-supply (through constant, though possibly slight, mechanical stimulation) the removal or abatement of such a factor may result in steady improvement.

Again, I trust I am not biased in concluding that this series affords further support to the view that such a mechanical stimulus can be diminished, or removed, by transferring the mesenteric strain to a region where it is comparatively innocuous. Such, I suggest, is the object, not only of transverse colopexy, but of ascending colopexy also.

The Effect of Active Inhibition on the Gall-bladder, Stomach, Pancreas, &c.

Gall-bladder.—When the abdomen is opened in a well-marked case of visceroptosis, there is one feature which has often struck me, and must often have appealed to others—namely, the marked distension of the gall-bladder in the great majority of instances. The gall-bladder appears thin, bluish, distended, and firm to touch; and it is difficult to empty by steady pressure. When there are obvious bands attached to the fundus, or neck of the gall-bladder, or to the cystic duct, such a distension is easily explicable on mechanical grounds. But in the majority there are no such features to be observed.

The gall-bladder being an outgrowth from the alimentary canal, is innervated in the same manner, as recently emphasised by Langdon Brown. If, therefore, abnormal mesenteric tension elsewhere is causing reflex sympathetic stimuli in various parts of the intestinal tract, it is not surprising that a resultant inhibition should involve the gall-bladder. On these grounds I have regarded marked distension of a gall-bladder, which is free from adhesions and shows no other signs of inflammation, as evidence of active reflex inhibition from some remote mesenteric stimulus; in visceroptosis it may perhaps be an indication that this condition is exerting pathological effects. Further, in cases where gastric stasis is well marked under X ray examination it will usually be observed that the gall-bladder exhibits the features referred to.

If such an inhibitory stasis renders the gall-bladder unable adequately to empty itself of bile, such a stagnation may be an important ætiological factor in the development of gall-stones; and it is not difficult, from such an aspect, to appreciate the frequent association of gall-stones with ileo-cæcal or ileo-colic inhibition. Again, Moynihan has laid stress on the association of gall-stones (even in the absence of any typical symptoms), with flatulence, indigestion, and other gastric symptoms. It is not difficult to appreciate that the original source of the gall-bladder inhibition (possibly a contributory factor to the formation of calculi) may equally have exerted its reflex inhibition on the stomach and be responsible for such symptoms.

Such a view would not only account for the occasional coexistence of gall-stones with gastric or duodenal ulcer, but would lead one to expect that cholecystitis, with or without calculi, would not infrequently be associated with visceroptosis—such experience as I have had has confirmed this expectation in a very fair proportion of cases; though the calculi have not always been responsible for the symptoms.

Probably most of us have seen patients, the subjects of definite visceroptosis, complaining of many of the symptoms of gall-stones, who, on exploration, were found to have the distended gall-bladder referred to, but no gall-stones. In several instances in my series such symptoms were completely relieved by colopexy.

Gastric and Pancreatic Inhibition.

There is reason to believe that the musculature of the pyloric part of the stomach has an analogous innervation to the small intestine; the cardiac half is probably supplied by the vagus alone both for contractile and inhibitory purposes. The pathological conditions we have been discussing as responsible for direct or reflex sympathetic stimulation, will, in the case of the stomach, only affect the pyloric part. The stimulation of the efferent vagus (by the afferent vagus impulses already referred to) results in a contraction of all the muscles of the cardiac end and fundus of the stomach. The contraction of the circular and longitudinal fibres diminishes the lumen, and thus tends to force the food into the pyloric end; a function further assisted by the raising of the fundus effected by the contraction of the oblique fibres. The food, thus forced into the pyloric end by these rhythmic waves, excites the mechanical pressure stimulus which initiates the peristaltic wave (consisting of contraction and concomitant inhibition). The peristaltic waves are responsible for driving the contents towards the pylorus in a manner analogous to that seen in the intestine. The relaxation of the pyloric sphincter is due to the presence of alkaline pancreatic secretion in the duodenum, the presence of acid gastric chyme being responsible for the closure of the sphincter until its neutralisation by the former allows a further relaxation.

A reflex stimulation of the sympathetic from the various lesions under discussion will inhibit the peristaltic waves to some extent and prolong the pyloric closure, while leaving unaffected the cardiac end and fundus (not inhibited by the sympathetic). Such a stimulus further excites a constant increase of adrenal secretion above the normal, which may also contribute to prolonged pyloric closure; a feature which may further be accentuated by a consequent deficiency in pancreatic secretion, due either to excessive adrenal secretion or to insufficient acid chyme in the duodenum. The possible importance of this last factor in the ætiology of congenital hypertrophic pyloric stenosis in infants, as well as in the causation of the added spasm (often responsible for completing the obstruction), was recently emphasised by Dr. G. R. Pirie, and applied by us both in a clinical study of this condition. If our deductions are correct one may, perhaps, infer that the same cycle of events obtains in the case of adults, the only difference being the *degree* of obstruction possible from such causes in a normal adult pylorus.

Such a prolonged reflex closure of the pylorus (with inhibition of the pyloric half of the stomach) will, if excessive, constitute an intermittent pyloric obstruction of varying degree, which, as in the case of the intestine (Bayliss and Starling), will increase the rhythmic waves behind. These features are observable under X ray examination, for in this class of gastric stasis the waves, which are usually seen to commence in the distal half of the stomach only, may often be observed almost at the cardiac end in extreme cases.

It is evident that under these conditions of reflex inhibition we have some at least of the necessary factors for the establishment of gastric stasis, hyperchlorhydria, &c., consequent on obscure lesions elsewhere. For if the glands of the cardiac end (like the musculature) are not supplied with sympathetic inhibitory fibres their *secretion would not be inhibited* Such may be the explanation of the large splashing stomach which is such a constant feature, while the associated hyperchlorhydria may be due to the continued secretion (by the oxyntic cells in this region) of hydrochloric acid which cannot escape into the duodenum at the normal rate

That these conditions could be modified or relieved if such an inhibitory stimulus were removed is clear, and I suggest that the modification or cure of the gastric symptoms in the series just studied, by the various *forms of colopexy performed*, is due to the removal of such a mechanical nerve stimulation

Gastro enterostomy and Colopexy Combined

In cases of long duration constant spasm of muscle may lead in the course of time to some degree of hypertrophy, so that, while *the removal of an inhibitory* stimulus *may cure the condition in* comparatively early cases, such a result may not be attained if the condition has been progressive for some time and secondary factors are established It is clear that, in the varying degrees of gastritis, consequent on a retention of contents we have at least one of the ætiological factors in ulcer formation, particularly if the element of prolonged sepsis be added

Thus Dr Pirie and I inferred that pancreatic functions do not recover *immediately if they have long been in abeyance And it is* possible that some degree of pyloric hypertrophy, with a spasm accentuated by pancreatic insufficiency, may persist after the *original exciting cause has been removed—in fact, a secondary* ' vicious circle may become established

That this is one of the causes of failure in the foregoing series I am confident How, then is the pancreatic function to be re established and the normal pyloric relaxation ensured? This can be effected by gastro enterostomy which allows *acid chyme to leave* the stomach by the stoma, and stimulate prosecretin to form secretin Secretin, reaching the pancreas by the blood stream, *stimulates the pancreas to pour its alkaline secretion into the* duodenum (Bayliss and Starling), thereby ensuring the normal pyloric relaxation by establishing duodenal alkalinity When this end is *effected, food* will pass by the normal route rather than by the artificial stoma—a most desirable objective—and normal functions will be restored

Criticism of this procedure has been justly based on the poor results obtained when there is no gross obstruction, but the reasons *for failure have, I believe not been fully appreciated A discussion* on this subject may well form a study in itself but, from the point of view of inhibition alone, it seems clear that if gastro-enterostomy *alone is performed, the pyloric spasm is unaffected, because* the ' fons et origo ' is overlooked

Again, the artificial stoma (if the posterior no loop anastomosis is practised) does not function, because, in the upright posture, the prolapsed colon and stomach, dragging upon the upper jejunum and its mesentery, *stimulate mechanically its efferent* sympathetic supply, and thus inhibit partially or completely its muscular action This ballooning of the jejunum can be well observed *when* gastro-enterostomy is performed under spinal anæsthesia (Fig 7 (A-A')) Therefore the jejunum being inhibited, chyme does not leave readily by the stoma, pancreatic insufficiency is not corrected, pyloric spasm persists, and symptoms are unrelieved If such a jejunal inhibition is excessive the bowel becomes "water *logged*" (just as Moynihan *demonstrated to occur from axial* rota tion) May this not constitute one of the causes of "vicious circle" after gastro-enterostomy?

Again, a membranous adhesion of the first ½ in to 1 in of the antimesenteric border of the jejunum to the under surface of the mesocolon is often present in *visceroptosis (Fig 7, (X-X'))* This has been emphasised by Mayo If my contention be accepted—namely, that kinks rarely produce mechanical obstruction—is not the *elongation and distension of the duodenum (so commonly seen)* primarily a natural sequence of direct jejunal inhibition? Again, in pyloric and duodenal ulcer, for example, the hunger pain is attributable to the return of the pylorus to its state of firm closure when the stomach is empty Such a closure takes place onto an ulcerated surface—a condition which *obviously prevents healing*

Many such ulcers produce no organic obstruction, yet they will often heal after gastro-enterostomy! Is it not a logical inference that *pyloric spasm is accentuated by* pancreatic insufficiency, which can be remedied by allowing the acid chyme to pass by the artificial route—i e, the gastro-enterostomy stoma? Evidence goes to prove that pyloric relaxation obtained by this mechanism is responsible for the healing of pyloric and duodenal ulcers after gastro-*enterostomy, but this is only complete if every cause of pyloric* spasm and potential jejunal inhibition is remedied simultaneously Is not the failure to remedy associated causes of reflex pyloric closure *and potential* jejunal inhibition responsible not only for the partial successes following gastro enterostomy but for failure of gastro-enterostomy when prolapse is marked? *For if relief of* pylorospasm in the presence of an ulcer can be achieved by gastro-enterostomy, why not expect equal efficiency when no ulcer exists?

If my deductions are correct, it would be expected that combined colopexy and gastro-enterostomy would *not only relieve the reflex pyloric closures and pyloric inhibition but would also prevent* jejunal inhibition That this is so I hope to establish by a study of *my* next group of cases *Here the prolonged and constant* symptoms were pre eminently referred to the stomach and were taken as an indication that though the primary cause must be looked for and remedied, secondary gastric and pancreatic sequelæ were too far advanced to be remedied without more extensive measures

In this more advanced class of case the combination of predominant gastric symptoms, marked stasis contracting waves starting at the cardiac end, together with a pylorus which at operation appeared in most instances to be definitely thicker than normal (*I freely admit the difficulty of being positive on such a* point), led me to perform gastro-enterostomy (posterior vertical no-loop) combined with either transverse or complete colopexy

There are 24 cases in *this series*, of which 3 are too recent to be of definite value In this series again there was no mortality Of these 21 cases, 15 are cured (71 4 per cent), of which 1 cannot be traced, but was quite well some time after operation, 4 cases (19 per cent) are improved by the operation, 2 cases (9 per cent) failed This represents 90 4 per cent of satisfactory results in some years practically all having been traced to date Of the two failures, one is relieved of the gastric symptoms, but the result is complicated by uterine and other troubles (I am not at all sure that I was not mistaken here as to the chief complaint requiring attention) In *the other failure the girl was a marked neurasthenic* and had been under treatment for this condition I was of opinion that the gastro intestinal symptoms were largely the cause of the neurasthenia this view has proved incorrect I *feel* sure in this instance I did not recognise the type of gastric symptoms stasis pain, &c, as belonging to a group which I shall refer to later as rarely suitable for surgical interference (See "Mental Factor") Of the 4 relieved, 2 are greatly relieved, and may almost be classed in the first *group Had I not wished to err on the side of* caution I might with some justification have given these figures as 81 per cent, 9 per cent, and 9 per cent, respectively

Ulcer—A most careful search for external (peritoneal) evidence of an ulcer was made in all cases Of those cured, such evidence was only found in 2 cases Hæmatemesis without visible ulceration *was noted in 1 case Of those relieved, evidence of an ulcer* was seen in 2 cases No evidence of ulcer was seen in the two failures

The operations performed were —

Gastro enterostomy and complete colopexy			16 cases
,,	,, transverse	,,	4 ,,
,,	,, ascending	,,	1 case

(In the last case ascending colopexy was combined in order to relieve the *tension on bands from the gall bladder and pylorus* which were supporting a mobile cæcum and ascending colon A complete cure resulted)

Pain was severe in 16 (76 per cent), of which 81 per cent were cured and 12 per cent relieved When no acute pain was com plained of (5 cases), 4 were cured of their symptoms Vomiting was *a marked feature in 9 cases (42 per cent) When it was an* accom paniment of acute pain (7 cases) 6 were cured and 1 was relieved Constipation was noted in *50 per cent it was severe in 33 per cent* of these When constipation was prominent, 53 per cent were cured and 36 per cent improved When no constipation is noted, there are 10 *per cent of failures* and 80 per cent of cures

Many of these cases are very instructive but I will only quote one example, the case of a lady of 48 with a history of painless hæmatemesis 14 years previously Operation was advised and declined She had suffered from ' poor digestion for years, with pain and *discomfort, never acute* She was a *woman of poor* physique, sallow and wasted Two years ago there was another hæmorrhage and she consulted a surgeon, who explored and, find *ing no ulcer, divided a band* Since then pain became progressively severe and acute, and a year later I saw her She had a most pro nounced visceroptosis On exploration the colon was found to have practically no fixed points An extra-cæcal appendix was removed No ulcer was found, but the marked gastric history induced me *to perform gastro enterostomy Complete colopexy* was also performed Though it is only seven months since the operation she has never felt so well for years, has put on weight, and considers herself well There is no question of the results being transitory, for some of the cases were operated on many years ago If the figures given be contrasted with the *late results* of gastro-enterostomy alone, I cannot but infer that they support my hypothesis

Only the other day I had the *opportunity of* seeing two of these patients on the same day, and the contrast was worthy of note Previous to operation both had markedly enlarged, prolapsed, splashing stomachs (one also had an ulcer on the lesser curvature at the cardiac end), and general visceroptosis to a marked degree Both were chronic dyspeptics of several years *duration The man* had a gastro-enterostomy performed with no fixation about five and a half years ago the woman had a gastro-enterostomy and complete *fixation five months ago The former still takes bismuth (though* describing himself as much improved), and has the same large splashing stomach some hours after food the latter has no trace of gastric dilatation or splashing on examination

Again, I find the notes of five cases where gastro-enterostomy alone was performed in *past years for symptoms of ulcer in the* presence of marked visceroptosis In one partial pyloric obstruc tion from long standing obvious ulceration was present *This patient is very greatly* relieved, but still has slight indigestion nearly three years later None describe themselves as cured and one was certainly a failure *Is there not sufficient justification for the* belief that these five cases might have been cured by a combined colopexy? I think that there is considerable evidence to show that the *relief of mesenteric* strain is an important adjunct to gastro-enterostomy where this operation is indicated in long standing or advanced cases

I admit freely that none of the evidence is conclusive, much is, of necessity indirect and I could have wished to present a larger series for analysis, but, such *as it is not only does it seem to support* the principles on which the treatment of these cases was based, but the results appear also to afford justification *for the procedure adopted*

As a summary to the whole series of cases studied, I submit that the pathological effects of increased mesenteric tension are not only *confirmed* by a study of symptoms but that this hypothesis is further supported by the beneficial results of relieving such tension by the various fixation operations discussed

Gastro intestinal Inhibition from Extra abdominal Causes.

Space only permits *a brief reference to some* examples which are of importance from the surgical aspect I lay some stress on them because I believe the failure to appre ciate fully some of these obscure factors has been responsible for the unsuccessful results in some of my cases

(a) *Mental factor*—It is doubtful if this can be exaggerated Cannon and Crile have *both* emphasised the *effect of violent* emotions on the splanchnic system in animals; and their observations have been applied clinically by many. Over a prolonged period of time a summation of small stimuli may equal in effect the results of one short sharp stimulus. Thus, the effect of short-lived rage, fear, or other powerful emotion is analogous in its results with that of anxiety, grief, prolonged mental strain, unhappiness, overwork, &c. Amongst the latter class must be grouped abnormal mental impulses of the neurotic and neurasthenic subjects. Such patients are frequently the subjects of gastro-intestinal disorders of varying degree; and the difficulty is to determine whether the neurosis is primary or secondary to prolonged intestinal derangement. In common with others, I have had the gratifying experience of curing a supposed neurotic subject by operation; but, on the other hand, I have certainly made the reverse mistake, as I have shown. In the series of complete colopexies there is one case which I have classed as improved with considerable hesitation. She is definitely improved in some respects, but comes of a family with a bad mental history. The operation was only undertaken after prolonged consideration, but I am not certain how far it has been justified by the result. Many of these subjects show marked gastroptosis and prolapse of the colon, together with gastric and intestinal stasis; and in many respects they resemble the cases just studied.

The prolonged and excessive sympathetic stimuli of mental origin might well be held responsible for producing gastro-intestinal inhibition in an analogous manner to those just studied; but I am tempted to suggest that the pathology is a little different in some respects. Thus prolonged mental excitement is characterised by an excessive stimulation of the sympathetic system, and Langdon Brown emphasised the probability that secretory inhibition, marked in the case of the salivary glands, was true, to some extent, in the case of other secretory glands. We know that such stimuli provoke excessive secretion of the suprarenal medulla. (Elliott.) Is it not possible that this last factor is responsible for primary inhibition of pancreatic functions? If so, and the previous suggestion as to the probable responsibility of pancreatic engorgement for the sensation of hunger is correct, have we not an explanation of loss of appetite in this class of patient?

The deficiency of the resulting afferent vagus stimulus will elicit a poor vagus response. Thus, constipation might well result partly from a different primary cause—namely, deficient rhythmic waves leading to delayed excitation of peristalsis. In the case of the stomach, though prolapse and gastric stasis are present, a deficient vagus efferent stimulus will be characterised by feeble gastric contractions, *in marked contradistinction to the accentuated waves of* contraction noted in the series just studied. Coincidently a deficient gastric secretion, with a marked decrease in hydrochloric acid content (so characteristic of these patients), is similarly explained; and these features contrast again with those noted in the previous class of dyspepsia. In support of this I have noticed at X ray examinations that in nervous patients and where the meal is distasteful the feeble gastric movements are frequently succeeded by vigorous contractions, as mental reassurance is re-established or the distaste subsides.

Though I cannot speak with conviction from a limited experience, I may, perhaps, suggest that this distinction may be an *important point in eliminating the primary psychical factor.* I cannot help feeling that some failures might have been avoided in the past had more attention been paid to this point, though alone it *could not be conclusive.*

At the same time the possibility must not be overlooked that such continued and excessive abnormal sympathetic impulses may, in the course of time, lead to gross secondary changes of a similar character to those already studied For the relief of these surgical intervention may be necessary in spite of their psychical origin.

(*b*) *Sex.*—Though many factors have been considered as responsible for initiating pathological processes in the subjects of visceroptosis, the marked preponderance in females, as well as the larger proportion of post-operative cures in males, are not entirely accounted for on anatomical grounds alone. Thus, even in male infants Dr. Pirie and I believed we could trace a definite influence on the gastro-intestinal tract of pathological stimuli arising from the prepuce; while I have often noted the improvement in mild *constipation and vomiting in breast-fed babies after a necessary* circumcision when no other treatment was adopted. A striking example came under my notice about eight months ago—a male infant (one of twins, the other child being a girl), a fortnight old. Progressive vomiting and constipation of a week's duration had led to rapid wasting. Visible gastric peristalsis was extremely marked and a large palpable tumour was easily demonstrated. Phimosis of a considerable degree indicated the wisdom of *circumcision, after* which vomiting ceased and constipation disappeared. To-day both are beautiful children. The girl never showed any symptoms. If it be remembered that the propagation of a race depends on the integrity of such reflexes (amongst the most powerful impulses in the animal kingdom), is it not reasonable to infer that even a small lesion may sometimes initiate appreciable remote sympathetic effects? I only refer to this type of case in support of the view that such local lesions may be of considerable importance; *and that* equally the psychological aspect of this question may be an accessory factor in sex incidence. This, however, forms a complete subject of its own, and is clearly outside the scope of the present study.

(*c*) *Dyschezia* in all its forms, deficient rectal sensation, neglect of the call to defæcation, &c., all fully dealt with by Hurst, need not be discussed beyond saying that all may be the primary cause of overloading of the colon and may be responsible for starting the cycle of events culminating in widespread gastro-intestinal inhibition. It is obvious that correct and prompt palliative treatment of such conditions may effect a cure, but not alone if secondary factors (such as increased mesenteric tension) are firmly established.

(*d*) *Enterospasm.*—We have considered in some detail sympathetic stimulation and the resulting intestinal inhibition; but there is one condition where, it appears, the nerve balance may be deranged in the reverse direction. Thus, if the sympathetic be paralysed, normal inhibition is eliminated and vagus impulses exert unchecked domination. The result is disordered intestinal contraction ("enterospasm"), which is a definite cause of constipation. That the sympathetic system is influenced by nicotine is well known, and accordingly enterospasm is sometimes associated with oversmoking. (Hurst.)

There is one case in my series where I removed the appendix under the mistaken impression that it was responsible for symptoms. For some years symptoms continued as before, but cleared up on the patient leaving off smoking.

I now propose to refer briefly to certain types of disorders where the motor function of the intestine is impaired owing to disease of the neuromuscular tissue itself.

Intramural Lesions.

These may be diffuse or local, and, once more, the large bowel is principally involved.

Diffuse or generalised intramural disease.—Professor Keith has shown that in some cases, at any rate, where the colon had been removed Auerbach's plexus had been damaged beyond repair. It is clear that if fibrosis has replaced muscle or nerve and the bowel wall is incapable of responding to normal reflexes, there is only one remedial procedure—i.e., resection of the grossly affected part.

The clinical difficulty is to know when power of recovery is present.

There are two classes in this group according to the origin: (*a*) primary bacterial infection from within, leading to permanent neuromuscular damage; and (*b*) primary inhibition, leading to stasis, chronic inflammation, and similar effects.

Thus, in Group (*b*) the inhibitory factor discussed may, if unremedied, lead to the same end-result as in Group (*a*), which may arise from any prolonged or repeated bacterial infection of the colon—e.g., from dysentery (as in at least three of my cases), prolonged colitis (two cases), &c.

In one case recently operated on, obstinate constipation, progressive for over 30 years, dated from very severe enteric fever in childhood. This is one of the worst cases I have ever seen, both from the local and general point of view. A week after resection the bowels acted without medicine once or twice a day, and her thyroid enlargement had practically disappeared. In both these groups the end-result is the same, and the treatment depends on the difficult decision as to the degree of recovery possible. Some years ago I based such a decision on the presence of massive, putty-like fæcal contents in the cæcum and ascending colon after evacuation of the bowels. I looked on this as a sign of gross *impairment to the muscle itself, and one of the indications for* resection. I now believe that such a decision cannot be based on purely local signs, owing to the extraordinary power of recovery evident on occasion (particularly in young subjects) when the colon is diseased primarily from external causes (Group (*b*)); and also from the difficulty of estimating this clinically.

On clinical grounds and from X ray examination it would appear that the end of the transverse colon and the descending colon are seldom if ever in such an advanced state of disease as to require resection. Even if disease is advanced it is a region fairly accessible to palliative treatment, as is the pelvic colon. It must very rarely be necessary, therefore, to resect the whole colon. I have resected as far as half (occasionally two-thirds) of the transverse colon, from the terminal 6-12 inches of the ileum, in 31 cases during the last five years (Friedrich's operation). The ileum was anastomosed to the remaining part of the transverse colon. This operation leaves little if any raw surface afterwards, and is much less severe than complete colectomy; further, it is doubtful if the results are inferior. Several cases in this series had had more than one operation previously. In one case hysterectomy had been done ten years previously; the transverse colon anastomosed to the pelvic colon eight years previously, adhesions were divided for partial obstruction one and four years later by different surgeons, and she had visible peristalsis when I operated in 1919. I had to resect the terminal ileum and the proximal two-thirds of the colon, including part of the pelvic colon at the site of the anastomosis, where the transverse colon was enormously distended by a massive collection of fæcal contents. The result to-day is very satisfactory. I mention this case to emphasise that many of the patients in this group were in poor condition from long illness; also, the various pathological conditions being more advanced, the risk is naturally increased. The mortality in these cases was 20 per cent. from all causes. Two supposed to be out of danger died on the tenth day from pulmonary embolism, and one (a very severe case of colitis) from generalised hæmorrhages from almost every mucous membrane (probably of acute infective origin from the bowel). Of the remaining 3 there are good reasons for believing that 2 should not have been lost. I think the maximum risk may justly be estimated at about 10 per cent. Nevertheless, this risk alone is sufficient to reserve it for those who are practically chronic invalids.

In this series of 24 cases 2 cannot be traced, 36 per cent. are cured, and 41 per cent. are improved considerably. In 22 per cent. the operation was of no real benefit, though improvement was noted in some respects. In 3 of this series the operation was performed for obstinate colitis, and in 2 when progressive symptoms had dated from dysentery. Seventeen cases were operated on for constipation, and the most striking results were obtained when this symptom, with its sequelæ, was most distressing. Pronounced coloptosis was a feature in all but two, who were suffering from severe chronic colitis.

A review of this series has brought out several points of interest. In the first place 36 per cent. of complete cures seems a small figure when balanced against the risk of the operation, and I think this is so even if 41 per cent. are considerably improved. When successful the results have usually been strikingly good; while among those classed as improved, complaints of occasional flatulence, attacks of pain, or recurrence of constipation in mild degree, are sometimes to be balanced against the relief of the original symptoms. Again, where secondary gastric symptoms have been *pronounced, these have sometimes been improved, but* not always cured, by resection (presumably because they were too *firmly established to be cured by attention to the primary factor* alone). Finally, there are a few cases in this series which I think might have been cured by less drastic measures (of the type already considered) especially when the intramural degeneration was apparently secondary to inhibitory stasis

Against these observations must be balanced the distressing picture presented by *some of these patients* when *every form of* treatment has been tried without benefit The hopelessness of the outlook in a steady progress from bad to worse cannot but be justification for a measure of considerable risk if there is a *prospect of 35 per cent cures or 77 per cent* satisfactory results Accordingly I think this operation has a very definite place in the surgery of very advanced stasis and offers a good prospect of cure or improvement

But I am equally convinced that it should only be performed when it is certain that the bowel wall is diseased beyond hope of recovery This point cannot be determined on local evidence *at exploration alone more certain indications* being the age duration and progress of symptoms and the degree of suffering These combined with the appreciation of the original cause and a careful estimate by X rays of the extent of impairment of motor functions, will probably ensure that resection is only practised when there is no other chance of cure Finally in cases of doubt the origin of the symptoms from definite intestinal infection is a point *in favour of resection for then the neuro-muscular* tissue is primarily unpaired

Localised Intramural Lesions

Colic and intussusception —Colicky pain is essentially associated with intestinal movements and is absent while the intestine is at rest Since the *bowel wall is insensitive it would seem to* be a corollary that such pain is produced by an increase of the normal mesenteric tension during a peristaltic wave Intramural lesions *whether inflammatory or neoplasms must inhibit directly the mechanism of the bowel wall* so that an *inert area* or *segment* is produced which cannot respond to the normal inhibition of a peristaltic wave As a result the contracting segment of a peristaltic wave tends to drive such an inert area onwards into the lumen of the gut an event which is only prevented by the anchorage of the mesentery The pull on the mesentery originates this pain That this is so is seen in the occasional tendency to the formation of intussusception in annular carcinoma the elasticity and length of the mesentery being the determining factor

Intussusception —The determining factor in the causation being the elasticity and length of the mesentery there are I believe two main exciting causes of intussusception (1) those within the lumen of the bowel and (2) those affecting the bowel wall itself

1 In this group are classed such causes as intestinal polyps and *invaginated Meckel s diverticulum &c But the* common cause is swelling of the lymphoid tissue of Peyer s patches in the lower ileum associated with errors of diet Such œdematous swellings project into the lumen of the bowel in an analogous manner to its contents On the passage of a rhythmic wave over such a point the pressure stimulus is excited and the resulting peristaltic wave drives it onwards the bowel wall being dragged in after It is *noticeable that intussusceptions of dietary origin are usually of the* ileo-colic type

2 There is however a smaller group of intussusceptions not capable of such an *explanation* and *this group* more *especially* concerns this study I have elsewhere shown that there is evidence that some acute infections (e g acute rheumatism) which produce effusions into various structures such as skin pleura pericardium &c, may also invade the intestinal wall On occasion such an effusion may be large enough to form a palpable tumour and rupture the mucous membrane resulting in hæmorrhage from the bowel *This is known as Henoch s purpura I have seen* a similar condition mistaken for intussusception in an infant suffering from diphtheria Such inflammatory intramural lesions must inhibit directly a definite area of bowel wall and when reached by a *peristaltic* wave prevent the normal inhibitory portion of the wave at this point The result is that the inert area is driven onwards by the contracting wave tugs on the mesentery *and causes colic Should the mesentery be thin and* inelastic as in infants this point is driven into the lumen and intussusception results The colicky pains associated with *inflamed* mesenteric glands *are analogous* for we have seen how these by their inflammatory stimulus to the mesentery may inhibit an associated segment of bowel

Accordingly I have seen typical acute rheumatism associated with intussusception while lesions of this origin occurring *in* the appendix explain the frequent occurrence of appendicitis in different members of a family who living together are exposed to similar *infective conditions*

It is noticeable that intussusceptions of such origin are usually either ileal or arise in the cæcum This origin further explains recurrent intussusception *for which I have operated for the third time* in the same patient (the intussusception being of a different type on each occasion) Time does not allow me to adduce all the available evidence in support of this contention I only emphasise it as an instance of direct inhibition of the bowel wall from extra-abdominal causes and to call attention to the wisdom of examining for and remedying the source of the infection when the intussusception is cured

Finally I suggest that many instances of recurring colic of obscure origin (particularly in children) may be attributable to such small *undetected inhibited areas in the bowel wall arising from* a subacute or chronic infective focus Such for instance I believe to be the nature of the abdominal pain arising after serum administration and I have frequently seen such recurrent attacks (often attributed to chronic appendicitis) disappear permanently after attention to the teeth and throat where medicinal measures have constantly failed

Conclusion

In conclusion the aim of this critical study of over 300 intestinal cases has been to show that there is a large group of visceral disorders primarily initiated by a derangement of normal nerve impulses The main points to which I desire to call attention may be briefly epitomised It is a law of the intestine that increased work is always responded to by increased effort leading to hypertrophy This truth is exemplified clinically in the results of mechanical obstruction in every part of the gastro intestinal tract while physiologically, it has been demonstrated by the work of Bayliss and Starling No such hypertrophy is ever seen in the visceral disorders under discussion, and this fact alone constitutes an a priori refutation of any mechanical origin *as applied to the bowel itself The establishment of* attenuation and muscular relaxation of the colon, so characteristic of this group of disorders, is only possible if this physiological response to an increase of work is prevented, either by primary intramural disease, or by prolonged active inhibition of its musculature, due to abnormal direct *or* reflex nerve impulses *The role of the mesentery is to* carry vessels and nerves to and from the intestine and never to act as a supporting structure, when it so acts (e g, in congenital mobility of the colon) mechanical stimulation of the contained nerves results The truth of this is evidenced experimentally and at operations, and I *have tried to show that it is equally true pathologically*

Experimental difficulty in stimulating the vagus contrasts strikingly with the ease with which sympathetic stimuli may be evoked, and this feature is responsible for the domination of sympathetic inhibition of the bowel musculature resulting from a pathological stimulation of its dual nerve supply The domination of sympathetic inhibitory impulses is an essential feature in intestinal propulsion by *peristalsis (as opposed to the domination of parasympathetic* impulses responsible for rhythmic contractions), and this mechanism is pre eminently initiated through mechanical stimulation by the *bulk* of contents, in regions where the contents are solid or semi solid (i e, in the colon) This is *analogous to the mechanism in animals whose food is bulky* For this reason the ease with which such a dominating innervation can be excited pathologically is responsible for the fact that the colon is so often the primary origin of visceral disorders

I have tried to show that the mesentery is one of the most *important factors in the causation of disease owing to the* susceptibility of its contained nerves to pathological stimulation a fact supported by common clinical experience For in acute intestinal obstruction the profound collapse associated with mesenteric strangulation contrasts with the insidious onset of symptoms when *the* bowel alone is *involved Inflammatory stimulation is evident in the* ordinary symptoms of peritonitis, while the possibility of mechanical stimulation is demonstrated by the similar symptoms (manifested in a less striking degree) initiated by congenital abnormalities in analogous situations (i e, mesenteric bands visceroptosis &c) *I have adduced* clinical evidence in support of the view that inhibitory sympathetic stimuli can be initiated mechanically, by experimental as well as pathological traction

When, therefore, the normal supports of the colon are relatively inefficient from any cause, the mesentery assumes *the additional function of a supporting structure or ligament* The resulting efferent and afferent sympathetic stimulation are responsible for the direct and reflex inhibition of the bowel musculature which forms the starting point of intestinal stasis Thus a vicious circle is established and the condition is bound to be progressive Operations for fixation *of the colon in its normal relationship* should be designed towards a relief of the pathological tension on the nerve bearing mesentery, and the transference of such tension to regions where essential nerve impulses, both efferent and afferent, are not exposed to interference Such is the *object to be aimed at in the various methods of* colopexy, the permanent success of which is evidence in support of its value The success attending right sided colopexy has recently been demonstrated in a masterly study of a large series of operations by Mr G E Waugh The *fact that he has performed colopexy with a different* object in view does not prohibit me from accepting his gratifying results as additional evidence in support of my hypothesis

Finally, in a few advanced cases the neuro-muscular tissue of the colon is *itself damaged,* either *primarily* or *secondarily beyond the possibility of repair* When this degree of destruction is definitely ascertained no fixation operations can possibly be of value, and resection of the grossly diseased portion offers the only prospect of cure

To summarise in parable The intestine represents the horse *the mesentery the reins,* and the *central nervous* system the driver Have we not in the past concentrated too wholly on the horse? And may not a closer attention to the latter two enable us to guide the former to a more adequate performance of its functions?

Such *have been the objects of this investigation* If I have not entered into sufficient detail on many points of importance such a defect is due to the fear of rendering such a complex and extensive study too unwieldy and of obscuring the main points at issue *This conception of the pathology of many visceral disorders has been of consider*able assistance to me in its clinical application to the surgery of abdominal disease, and I hope that further study in this direction may prove of value in the future

TREATMENT OF THE CONVALESCENT SOLDIER.[1]

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(*With an Appendix on Physical Training Games.*)

MANY advances in medicine, surgery, and preventive medicine, as well as many new methods of treatment, have been placed on record during the past few years as the result of experience gained during the war. As far as I am aware, however, nothing has been published on the subject of convalescence in general and of the treatment of convalescent soldiers in particular. Treatment during convalescence does not, as a rule, fall within the view of the consultant, it is regarded as uninteresting by the general practitioner, and its importance is, I think, scarcely recognised by those in the medical services whose attention has not been called to it and who have not had practical experience of the modern methods.

I do not intend to describe the gradual evolution of the method of treatment ultimately adopted as giving the best results, but I propose to give a brief description of the method in its full development, which has been of immense importance and value, not only to the convalescent soldiers themselves, but to the army in general and to the nation at large.

It is, perhaps, desirable that the writer's qualifications to speak on the subject should be explained. The methods of treatment and the results obtained are described as the outcome of personal observation and somewhat large experience. After three years' combatant service in command of a battalion in the field, I was given a temporary commission in the R.A.M.C. and entrusted with the organisation and administration of a large convalescent depôt in France from the very beginning until it ultimately attained its full complement of 5000 patients. During my period of command many thousand convalescents passed through my hands, and apart from a general supervision I had the opportunity of personally examining carefully a very large number of men and noting the results of the treatment employed.

Convalescent Treatment.

I wish first of all to emphasise the importance of convalescent treatment, which I think is often underestimated, if not neglected. Neglect of proper treatment during convalescence and wrong methods of treatment, especially in the earlier periods of the war, were responsible for an immense loss in effective numbers in the army, great waste of money and man power, and in some cases for prolonged, and even permanent, ill-health in the individual. A quick return to health is important in all cases, but in the Services it is vital that this should be procured in the shortest possible time.

The usual conception of convalescence is a period of rest and quiet enjoyment of a somewhat idle existence, with no active treatment. As a general rule convalescent soldiers at home, especially in the earlier periods of the war, were allowed to "loaf," and their stay in auxiliary hospitals was frequently unduly and unjustifiably prolonged. This was absolutely wrong; convalescent treatment to be successful must be active treatment under strict medical supervision.

The difference between the ordinary convalescent civil case and the convalescent soldier must be clearly appreciated. The object to be attained in treating the convalescent soldier is to render him fit to take his place again as a fighting man in the shortest possible time and in the most economical way. The mere comfort and enjoyment of the patient, pleasant methods of treatment, the pleasure of a lengthy stay in a charming watering-place, a congenial climate, all are useful, but must not be considered except in so far as they conduce to making the patient fit again without delay. The good of the army in general, not of the patient alone, is the supreme object, and this is attained by returning him physically, mentally, and morally fit to take his place again in the army at the earliest possible moment.

Quite apart from the disability due to his wound or sickness, the health of the convalescent soldier is impaired by the very fact of his admission to hospital. For a longer or shorter time, according to the serious nature of his disability or otherwise, he has not enjoyed the advantages of the open-air life, the hardening effect of work and exercise; he is out of training; discipline has been necessarily relaxed during his stay in hospital; he may have been better fed, but he is wanting in tone; his efficiency as a soldier is considerably impaired. He is obviously unfit immediately on discharge from hospital to take his place in his unit. He requires better food, more rest, and better conditions than are possible in his unit or depôt, freedom from exposure and strain, and a gradual hardening and training before he is fit to take his place in the field.

The "morale" of the hospital patient is always lowered, and one of the first essentials of treatment is to impress upon him that he is no longer a patient but a "soldier under training." This lesson I tried to inculcate on every patient when he entered the depôt. All my officers had instructions to lay special stress on this point in their introductory address, which was given to each batch of patients on arrival.

Organisation of the Depôt and Essential Qualifications of Medical Officers.

I do not propose to describe in detail the organisation and establishment of a convalescent depôt, which may be found in the official publications, but in order to understand the method of treatment employed it is necessary to give a general idea of the organisation. A large depôt such as I commanded was equipped for 5000 patients, and for administrative purposes the commanding officer was assisted by an adjutant and a quartermaster, who were combatant officers, as well as a small number of combatant officers attached for various duties—e.g., censorship, orderly duties, supervision of work, assistance with organised sports, and so on.

The depôt was divided into five divisions, each of 1000 men, each division commanded by a medical officer, who was responsible, not only for the health and treatment of his men, but for the discipline, organisation, and administration of his division. Each division was further divided into four companies, each of 250 men, under a company sergeant-major for purposes of administration and discipline, and each company further subdivided into hut parties under non-commissioned officers selected from among the convalescents themselves.

I desire here to say a few words as to the qualifications essential in the medical officers who may be called upon to fill posts on the staff of a convalescent depôt. In the early days unsuitable officers were sometimes appointed, and a very great debt is due from the army to Lieutenant-General Sir C. Burtchaell, Director-General of Medical Services in France, for his recognition of the fact that if convalescent depôts were to be successful they demanded the services of the very best medical officers the army could supply. Elderly or unfit men with no experience outside hospital work or civil practice are quite unsuitable. The medical officer on the staff of a convalescent depôt must be young and energetic, keen, having a deep sympathy with and understanding of men, and able to gain their confidence. Professional skill is useful, but its importance is secondary compared with tact and a knowledge of men in general and of soldiers in particular. A man who has served in the front line, preferably as a regimental medical officer, makes the best officer; in addition, he should be a sportsman in the best sense of the word, able and willing to organise and join in the games and amusements of the men under his care.

The combatant officers and the warrant officers on the staff must also be of the right type and with similar qualifications. If unfit for the front line service their disability must be such as does not unfit them for hard work, and it is of vital importance that no officer, medical or combatant, or warrant officer, should be suffering from neurasthenia or neurosis of any kind.

Method of Treatment: Physical Training.

Having thus briefly dealt with these introductory matters, I will endeavour to describe the method of treatment adopted, again emphasising the point that it is not merely the restoration to physical health which is the aim and object of treatment, but the complete physical and moral regeneration of the soldier in the shortest possible time to render him fit to take his place as a "first-class fighting man" in the field. On reception in the depôt a hot meal was provided (it is always well to give a man a good first impression of his surroundings), and the men were allotted to their divisions and companies, shown their accommodation, made acquainted with standing orders, and then given time to shake down Every man was then carefully examined by his divisional medical officer and classified This classification is most important, and is the basis of subsequent treatment Any actual medical or surgical treatment required was noted and arranged for, and, in addition, the men were graded for physical training

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[1] A thesis for the degree of M.D. in the University of Cambridge.

Physical training is the watchword of the present method of convalescent treatment, its importance cannot be overestimated, combined with a judicious amount of amusement, moral training and discipline, with good feeding, healthy surroundings, ample rest, and freedom from exposure and strain, it reduces the period of convalescence within the shortest possible limit of time

The classification adopted in the depôt under my command was as follows B 1—i e , those fit for the full course of physical training , B 2—i e , those fit for a modified course of physical training , C—i e , those unfit for physical training, who required temporary rest It frequently happened that on examination a man presented no disability and appeared physically fit for Grade A—i e , full duty with his unit, but in view of the opinion I hold strongly that every hospital patient has necessarily suffered in "morale and discipline, as I have previously explained, no man was so classified and returned for duty Each man was temporarily classified B 1, given one week s full physical training, together with all the advantages of a stay in the depôt for that period, with a view of bringing his "morale' up to the high standard required for front line service

In some depots men classified C (i e , unfit temporarily to undergo any physical training) were rejected and returned to hospital Except in the case of men really still in need of hospital treatment, I personally think this was a mistake, as it prolonged their stay in the hospital atmosphere, which tended to sap their moral fibre, and their ultimate convalescence was thus prolonged I preferred to give them a chance My medical officers were instructed not to allow any convalescent to be graded as C for more than three days without my seeing him personally, after this he was allowed to remain graded C until a week from the date of his admission, if still considered by his medical officer unfit to undergo any graduated physical training he was reluctantly returned to hospital as unsuitable at the time for convalescent treatment

The method of physical training adopted was absolutely different from the old system of physical drill by word of command Every exercise required to bring the muscles of the various parts of the body into play was performed by means of a game, so devised as to exercise the required muscles The men were quite unconscious that they were performing systematic physical exercises, there was no drill, there was no word of command Many of the games were also devised to stimulate the mental powers by requiring quick thought and rapid decision , these games involving mental training were quite as important as those with a mere physical basis Whenever possible the spirit of competition especially combined team competition was introduced into the game, which is the most useful method of fostering and encouraging the development of the *regimental spirit*, which is of such inestimable value in the British army

This new method, gradually evolved and perfected by the Headquarters Physical Training and Bayonet Fighting Staff of the army, has wrought a revolution in physical training, physical drill is a thing of the past Training now consists of a series of training games with suitable intervals of rest The men no longer regard physical training parade as an arduous and distasteful duty, they look forward to it eagerly, take the greatest interest in the games they are invited to play they thoroughly enjoy them and the benefit to their nervous system, as well as to their general health, is immense

Instructional Staff

The instructional staff consisted of an officer and two warrant officers in charge, with 20 instructors one for each company in the depôt, who belonged to the army physical training staff For convalescent depôt work the very best and most intelligent instructors are required, who should possess similar qualifications to those already laid down as essential in the medical officers I was exceptionally fortunate in my physical training officer, Captain M Fynne, Royal Irish Fusiliers, who superintended the physical training and organised the voluntary games with unqualified success In addition to the permanent staff a large number of assistant instructors from the convalescent N C O s were trained and employed

One most important point must here be mentioned Although the physical training was conducted entirely by the physical training staff, the whole was invariably supervised by a medical officer, who was responsible that no man was unduly fatigued and that no man took part in any game or exercise which was unsuitable for him The instructors were warned to watch the men carefully, to be particular to cause men to desist if they were in the least distressed , but, on the other hand, to ensure that every man did his best In any doubtful case the medical officer was always on the ground to advise and decide

It must be clearly recognised that in almost every case the convalescent, whatever his disability, is capable of taking part in some form of physical training, otherwise he is not really convalescent, and is therefore unsuitable for treatment in a convalescent depot The man with a "leg' disability can engage in "arm ' or "trunk ' exercises presented to him in the form of games in which only the muscles of the "arm" or "trunk are involved similarly the man with an "arm ' disability can play "leg games even the "heart case is benefited by carefully thought out and graduated exercises, such exercises being camouflaged under the guise of games in every instance All are able to play and enjoy the "mental exercise games Thus the necessary physical exercise is secured, the mental processes are stimulated, and in the vast majority of cases rapid progress towards restoration of bodily and mental vigour is attained

On physical training parades also the difficult task of reinculcating discipline is considered and undertaken. On the assembly and dispersal of the parade strict discipline is maintained , on the march too and from the exercise ground strict march discipline is essential, and the benefit to the men is enormous The training was graduated, and men as they improved were encouraged step by step to take part in the more vigorous training games, until they were finally fit to undergo the full course As a rule, about 75 per cent of the patients in the depot were fit for the full course arranged by the physical training staff

Malingering Inspiring Effect of Military Music

A few words on the difficult subject of malingering are not out of place My experience in a convalescent depôt is that actual malingering was exceedingly rare in the British soldier on the other hand, exaggeration of symptoms was very common In some there was a natural desire to prolong their stay in comparatively pleasant surroundings, in others the weakening of moral fibre produced either by their stay in hospital or by real long continued strain of active service caused this exaggeration I may add that my further experience in pensions work confirms my opinion that actual malingering is very rare, whilst a tendency to exaggerate symptoms of a real disability is not uncommon Here it is advisable to mention the most important auxiliary to physical training by the new method—viz , music A really good band is of immense advantage bugles drums and fifes, and pipes are found to be of great help in promoting a good and cheerful spirit amongst the men Many of the physical exercises and games are combined with music the rural dances which are taught are most valuable exercises and are extremely popular The inspiring effect of good military music is known to all, and its beneficial effect on the convalescent soldier with lowered ' morale is wonderful

I shall not attempt to describe in detail the exercises given, the graduation and modifications adopted in different classes; these have been carefully worked out, and can only be learned by practical experience. Those men fit for the full course of physical training have a short march to the exercise ground and back to the music of the band, pipes, or drums; those unfit to march carry out modified training on the assembly ground. But no man is allowed merely to loaf; every encouragement and inducement is held out to the convalescent to take his part in the exercise considered suitable for him; the guiding principle of the new method of convalescent treatment is never lost sight of—viz., that some form of physical training is beneficial and necessary whatever may be the nature of the wound or sickness from which the patient is convalescent.

The physical training described above was carried out every morning except on Sunday, when ceremonial parade services were held. These were useful both as an aid to smartness and discipline and as an opportunity for careful inspection of the men, their clothing, and so on, quite apart from the devotional side.

Value of Organised Voluntary Games.

In the afternoon physical training was continued, but in a totally different manner from the morning parade, by means of organised voluntary games. The value of voluntary games may not be appreciated sufficiently at first sight, more particularly if their careful organisation is forgotten. It may be a surprise to many who have not had personal experience of organising games among soldiers, to learn that a great number of men do not know how to play games, but such is the fact. Even football, the most popular game, has never been really played by large numbers of men who are physically fit to play. They may have kicked a football about, they have frequently watched others, but of playing the game in its true sense they know nothing. Being taught to play a game is one of the most valuable methods of training of a soldier, for the reason that, apart from the physical exercise, it constitutes a valuable moral and mental training, a method of development of the soldierly spirit, that idea of playing for his side, of subordinating his own individual good to the good of the team, that spirit of esprit de corps, of comradeship, of loyalty, of discipline, which is a most valuable asset to the soldier in the field.

To the convalescent with shaken "morale" such training is invaluable. There are two points that must be noted—firstly, that the spirit of competition must be introduced into every game; and, secondly, that the games must be of every variety in order to include men of every grade of physical fitness. The same principle is adopted with reference to voluntary games as to physical training—viz., that every convalescent, no matter what his disability, is able to play some game, and should be encouraged to do so.

Our organised games ranged from football to croquet. The organisation of the games in order to introduce the spirit of competition is essential. Our games were organised on the basis of a monthly competition between the companies in the depôt; there was always the keenest competition for the honour of holding the monthly championship flag. In order to ensure that the largest possible number of men played in the games no man was allowed to play in more than one competition, and further, which is most important, all competitions counted alike towards the championship, thus enabling the partially disabled man, who was only able to play perhaps medicine tennis, to take as great an interest in his competition, and be able to do as much for his company, as the man who was physically fit for football. Competitions in football, hockey, lacrosse, tug-of-war, cross-country running, basket-ball, "medicine tennis" (vide infra), miniature rifle shooting, cricket, and other games were held every month, equal points were allotted to each, and the company with the best aggregate of points held the championship for the next month.

Apart from the actual competitions men were encouraged to practise as much as possible, and additional games were provided—e.g., baseball for the Canadians. Lastly, every man was encouraged to watch the other competitions in which he was not playing, to help his company by cheering on his side, and generally to foster a healthy spirit of rivalry between companies, all with the idea of developing the soldierly spirit, which we endeavoured to inculcate strongly in every man before he left the depôt.

After physical training and organised voluntary games, which developed physical fitness and "morale," the most important means of treatment was organised amusements. The value of healthy amusement and enjoyment to distract men's thoughts, to cheer their spirits, to relieve the ever-present strain of active service, is very great, and therefore every effort was made to provide amusement for the men. The work of the Y.M.C.A. and kindred societies who provided recreation huts, libraries, and so on, was most valuable and useful, and, in addition, some kind of entertainment was provided practically every evening. Concerts, dramatic performances, dances, band concerts, whist drives, were provided in turn, the performers in most cases being patients in the depôt, with occasional outside assistance, always greatly appreciated, from Miss Lena Ashwell's concert parties and other friends. Lectures on various subjects, grave and gay, were also frequently given, but were not very popular; the men preferred amusement to instruction, and for the convalescent amusement is the more valuable as an aid to complete restoration to mental and bodily health. The popularity of dancing was very noticeable.

These, then, were our methods of treatment—physical training, voluntary games, and amusements. Of actual medical treatment there was only the bare minimum. Surgical dressings, of course, were necessary in some cases; a certain number of men, especially those who were obviously anæmic, had appropriate medical treatment, but the use of drugs was discouraged, except in cases where men actually reported sick, and the numbers so reporting were surprisingly small. Each divisional medical officer had a small detention hospital hut, where a man could obtain rest and appropriate treatment for a few days, but if his illness was such as to require more than three days' hospital treatment he was returned to hospital as unsuitable for the time being for a convalescent depôt. Cases requiring extensive surgical dressings were also regarded as unsuitable and are better in hospital.

Medical Inspections.

As a matter of routine administration every man paraded at least once a week for careful examination by his medical officer; the usual practice in my depôt was for the medical officer to inspect each company under his charge every fourth day. At these routine inspections men found to be fit were so graded and marked for discharge; the classification of the remainder was revised as necessary and the progress of each man duly noted.

The average stay of each man in the depôt in normal times was three weeks or a little more. If any man at the end of six weeks was still found unfit for discharge by his medical officer, he was marked for special examination by the commanding officer. These special cases came before me and their disposal was determined upon in one of three ways: a few were returned to hospital for treatment; those who in all probability would be fit in the course of a week or two were returned to their companies for continued treatment in the depôt; those likely to be some considerable time, or permanently, unfit for front line service were marked for discharge to their base depôts for examination and re-grading by a medical board. It was found by experience that a period of six weeks was ample in the great majority of cases for a man discharged from hospital as convalescent to regain his normal mental and bodily health; men who required longer were unsuitable for continued treatment in a convalescent depôt; they were usually fit for light duty at any rate, and it was desirable for every reason that their services should be utilised on lines of communications, where every man was badly wanted, in the category assigned to them by a medical board; a lengthy stay in a convalescent depôt was a waste of time, of money, and of man-power.

Results Attained by the Treatment.

Now, as to the results attained. Of the total numbers passing through my convalescent depôt in normal times approximately 85 per cent. or more were discharged absolutely fit, Grade A, for service at the front. The percentage of wounded discharged fit was considerably higher than of sick, varying from 90 to 94 per cent.; but it must be remembered that only in exceptional cases were any but lightly wounded cases sent to convalescent depôts in France. All seriously wounded cases, sooner or later, were sent to England, and must be excluded from consideration in connexion with the results of treatment as carried out in convalescent depôts in France.

The percentage of sick discharged fit varied from 74 to 80 per cent.; about 75 per cent. was the average in normal times. The total percentage of men discharged fit varied from week to week, being mainly dependent on the proportion of sick to wounded under treatment After periods of active operations, when the proportion of wounded was high—i e , 50 to 60 per cent of the patients in the depôt—the percentage of men discharged fit was considerably higher, and the average stay in the depôt considerably shorter, than during quiet periods at the front, when the proportion of wounded was low—i e , 30 to 40 per cent This, of course, was to be expected The lightly wounded man, as a rule, has been in good health up to the time of his wound, his stay in hospital has been comparatively short, he responds more readily in every way to treatment, except in those cases where the wound causes some permanent though slight disability, his "morale" and health are quickly restored

Of the cases that did not respond well to treatment, and were discharged to their depôts for re grading by a medical board, those cases that we considered our 'failures," the great majority were cases of myalgia or chronic rheumatism in some form, neurasthenia, and those classified in army nomenclature as D A H Cases of organic heart disease are different no treatment will render them fit for front line service, and they were not retained in the depot for treatment, but sent to their base depots for re grading Chronic rheumatic cases were always difficult—they generally presented subjective symptoms only, and at the best convalescent treatment only improved them up to a certain point, bad weather or any exposure caused a relapse Prolonged convalescent treatment in such cases is waste of time Cases of neurasthenia including cases of shell shock, certainly benefited by treatment to some extent, but usually responded very slowly Definite psycho therapeutic treatment was not available, for such cases the time allowed was far too short, and as the majority were usually fit for light duty on lines of communications, and in all probability would be for a long time, if not permanently, unfit for front line service, it was quickly recognised that it was useless to retain them in the depôt with the hope of their ultimately becoming really fit

A good deal of controversy has raged over the cases classified as D A H I do not propose to discuss the subject here, but merely to record the fact that "effort syndrome" cases as a rule did extremely well, when carefully watched they responded excellently to graduated physical training, and, although in numerous cases their stay in the depot was prolonged from six weeks to eight or nine, they were generally ultimately able to be discharged fit On the other hand, those cases in which the heart symptoms dated from a definite shock, or were distinctly secondary to a nervous condition, did badly (a large proportion of cases classified in hospital as D A H are really neurasthenia cases) the majority of such cases did not respond to treatment, prolongation of their stay in the depôt was useless, and they were discharged still unfit

On the whole, in spite of some disappointments and occasional unexpected failure, I think the results of the treatment adopted are a matter for congratulation, more especially if compared with results of the old method of treatment, or rather want of real treatment, formerly prevailing To return nearly 90 per cent of cases discharged from hospital absolutely fit for front line service, sound in body and mind, in an average time of three weeks to a month from the date of their discharge from hospital is an achievement of which the staff of the convalescent depôts may justly be proud, and is a proof of the soundness of the methods employed

Food and Clothing

A few other points require mention, the most important being the question of feeding

It was recognised that good feeding was essential and the full army ration was supplied With good cooking, made as attractive and varied as the circumstances of an army in the field permitted, the full army ration is ample but something more is required Biscuit may be nourishing, but is not appetising, the British soldier desires a certain bulk of food, and it was found desirable, and indeed necessary, to supply the bread ration as bread, with only a small proportion of biscuit Biscuit, when supplied was chiefly used in the making of puddings Fresh vegetables, which are most valuable, were frequently not available as a ration, the ration was supplemented in this instance by fresh vegetables grown in the depôt garden The only other supplementary article of diet provided was extra milk, this was valuable in enabling us to provide milk puddings It was not found possible, for administrative reasons, to cater for cases requiring really special diets, such are not suitable for a convalescent depôt and are better in hospital

Clothing is important, especially in winter, and the medical officers were responsible that every man was fully and properly clothed A large stock of clothing was kept in the quarter master s stores in order to make the men's clothing up to scale when necessary

Useful Employment of Convalescents

An important feature in administration was the use made of the convalescents themselves

The permanent staff was necessarily small and it was, therefore, imperative to supplement the staff by voluntary assistants in every branch of work in the depôt Employment of this kind was very popular and there was keen competition to be placed on the employed list, as this carried the privilege of being retained for the maximum period of six weeks, even though a man might be classified as fit for discharge before the end of the period of his employment The number of men thus ' employed" was very large as in addition to the assistance required in every branch of administration orderly room, quarter master s department, physical training and so on, continuous work in improvement and construction in the depot was carried on road and path making painting, repairing buildings, gardening and such like Every employed man was given one hour s physical training every day and was released from employment before discharge and given one week's course of full physical training in order to ensure that he should have the benefit of the disciplinary and moral effect of such course before returning to his unit

Conclusions

Finally, as the result of experience, I draw the following conclusions —

1 That the detention of a patient in hospital, whatever his disability, has a deleterious effect on his health, bodily and mental, and that on discharge from hospital, although convalescent from his disability, he is always unfit to return immediately to full duty with his unit

2 That convalescent treatment is a necessary corollary of hospital treatment, especially in the case of soldiers in the field

3 That every convalescent patient, whatever his disability, will benefit by some form of graduated physical training

4 That the object to be attained is not merely a return to physical health, but a real restoration of the moral tone and complete physical fitness required of a soldier at the front

5 That the best method of treatment is the system of graduated physical training, aided by voluntary games and amusements, which tends to develop moral character and the soldierly spirit, which are as essential as physical fitness

6 That by this method nearly 90 per cent of sick and lightly wounded men can be returned to fighting units perfectly fit to take their place in the field in an average time of less than one month from the date of their discharge from hospital

7 Lastly, that the result has been of inestimable advantage to the army, an immense economy in money, an enormous saving in man power, and an undoubted benefit to the nation

APPENDIX

Physical Training Games

A brief description of some of the various games used in the treatment of convalescent soldiers is given below These games are very numerous, and a description can be given of only one game in each group corresponding to a group of formal physical exercises

Each table of exercises laid down in the training manual consists of (1) introductory exercises—i e , simple exercises arranged to stimulate the circulation and prepare the body for the more strenuous general exercises, (2) general exercises, arranged in groups to develop and strengthen the various groups of muscles in every part of the body , (3) final exercises—i e , easy exercises during which the actions of the heart and lungs, accelerated by the general exercises, regain their normal rhythm. Each day the programme of games for convalescents is arranged to begin with introductory games, followed by general games, with a view to exercising special groups of muscles, and miscellaneous games, and ending with quiet final games.

Introductory Games.

"*O'Grady Says.*"—The players are formed up in open formation as for physical training, and the instructor gives a series of commands for exercises or drill movements well known to the players. The latter do not execute any order unless it is preceded by the words, "O'Grady says." For instance, "Quick March" is ignored, but "O'Grady says Quick March" is responded to. Any player performing a movement when he should not, or vice versa, stands out, and the last man left in the class wins the game.

This is an excellent introductory game, affording mental training, as it involves quick appreciation, rapid decision, and smart action; it also causes considerable amusement.

Crows and Cranes.—Ranks are formed up at 2 paces distance and 2 paces interval, backs towards each other and looking towards their respective fronts; ranks may stand, or sit tailor fashion, or lie out of distance of one another. Two finishing lines on the ground are required 20 to 30 paces in front of each rank. One rank is called "Crows," the other "Cranes." The instructor names the rank to be chased, rolling the "r" thus, "Cr-r-r-rows," but finishing the word suddenly, whereupon the rank named will endeavour to double to the finishing line without being touched by the other rank. Those touched join the opposite rank and change their names; on the word "Ready" all return to the starting-place, though possibly the ranks have been diminished or augmented respectively.

This is also a good introductory game, involving quick thought.

General Games.

Dog Collar.—Two players face each other on hands and knees, heads in the "head backward bend" position, hands on the ground in front of the head. A rope 5 feet long with the ends joined together is placed over the back of the head of both players, and a line drawn on the ground between them. On the word "Go" each player tries by pulling to make the other advance his hand over the line, thus deciding the winner. In order to introduce the spirit of team competition the players are divided into two sides, the side having the majority of individual winners, of course, wins the game.

This game strongly exercises the muscles of the neck and upper part of the spine, as well as the arm muscles.

Under Passing Relay Race.—The players are formed into two ranks facing a flank, all excepting the last in each rank with their feet at least three foot lengths apart, bending forward from the hips, and grasping the hips or belt of the man in front, the leading player in each rank holds a soft ball, and the rear one bends down in a position to receive it. On the word "Go" the leading man throws the ball backwards between his own legs and those of the player in his rear. As soon as the rear man receives it he runs to the front of his row, and goes through the same procedure as No 1, and so on, until the original leader gets the ball, when he races to the front and places the ball on the ground between his feet; the first rank to do this is declared the winner. Should the ball go outside the players' legs, or not reach the rear player when thrown by the leader, the nearest player fetches it, if necessary, and passes it on as described.

This game is designed to exercise the muscles of the back.

See-Saw.—The players are formed up in two ranks at double arm length intervals, standing back to back in pairs with interlocked elbows. On the word "See-Saw" the front rank men bend forward, raise the rear men off the ground, then relax, and allow the latter to raise them, and so on alternately. The raised man should keep his legs together and bend them upwards from the hips; the player lifting should have his feet apart and raise slowly.

This game is designed to exercise chiefly the abdominal muscles, as well as those of the back and arms.

Side Passing.—The players are formed up in two ranks standing with feet apart, and a sand-bag or football is passed from right to left and vice versa as many times as ordered by the instructor; each player must handle the bag or ball; the rank to finish first scores one point. As a variation the ranks may be turned to a flank and the bag passed down the left side and up the right and then back again.

This game is designed to exercise the side muscles of the trunk, as well as those of the arms.

Wrestling for Pegs.—The players are divided into pairs, each pair provided with two smooth pegs, 12 to 16 inches long and 2½ to 4 inches in diameter. The men of each pair face one another and grasp the pegs left hand to right and right hand to left. On the word "Go" each tries to wrench the peg from his opponent.

This game provides strenuous exercise for the muscles of the arm and forearm, as well as the trunk muscles.

Jumping the Stick Relay Race.—The players are formed up in two ranks turned to a flank 6 paces between ranks. The first two men of each rank hold each one end of a parrying stick, and stand in such a manner that the centre of the stick is opposite the front man of their rank. On the word "Go" they run down the sides of their rank, making the men jump over the stick. The original front man of the rank, holding one end of the stick, places himself in the rank at the back, while the other one runs to the new front man with the stick, whereupon these two make the rank jump as before, and so on until the last man is reached. The latter races to the front with the stick. The first rank to finish wins.

This game, involving jumping, exercises the leg muscles principally.

Medicine Tennis.—This game is played by four players over a tennis net, but with a football, the hands being used. The point is lost by failing to catch or return the ball. The court is marked out as for Badminton.

Miscellaneous Games.

Circle Touch Ball.—The players stand in a circle 1 to 2 paces apart, facing inward, with one player inside the circle. A football is passed low from one player to another by hand, and the player inside the circle endeavours to intercept it. If successful he changes places with the last thrower. If the ball falls to the ground the player responsible either for the bad pass or the miscatch changes places with the player inside the circle.

This game, exercising the trunk and arm muscles, is an excellent game for men with "leg" disabilities.

Hand Ball.—Goals are marked (width 6 to 8 paces) on any sized ground to suit the number of players. The players (any controllable number) are arranged in two sides approximately as in football. A football is passed from player to player along the ground, the object being to knock it between the goal boundaries. It can be dribbled by hand by any player any distance backward or forward, but must not be kicked, carried, or knocked into the air. No charging, holding, or any rough play is allowed; the penalty for infringement of these rules is a free hit.

This game, which involves strenuous exercise, is one of the best games for convalescents able to perform full physical training.

Relay Races.—These races, of which there are many varieties, can be arranged for suitable distances, and are particularly useful in teaching the spirit of team competition as opposed to individual competition.

Wheelbarrow Race.—The players are formed up in two ranks extended to full-arm intervals. Two lines for starting and finishing points are marked on the ground 15 or 20 paces apart. The front rank assume the "on the hands-down" position with the feet astride and hands on the starting line. The rear rank lift the legs of their front rank men and on the word "Go" the pairs race to the other line wheelbarrow fashion, the "barrow" keeping his legs stiff, and the wheeler keeping pace with him but not pushing the "barrow." Both ranks act as wheelbarrows in turn.

This game involves strenuous exercise of the arm, shoulder, abdominal, and back muscles.

The games described above are selected from nearly 100 games, some of them with numerous variations, which are detailed in the official pamphlets issued for the use of the army gymnastic staff. Of these about 25 are introductory games, 50 general games (i.e., devised to exercise particular groups of muscles), and 25 miscellaneous games.

As final exercises after the games a few formal movements taken from the physical training tables, such as "heels raise," "knees bend," "arms raise forward and upward, lower sideways and downward," quietly performed, form the best conclusion to the day's programme.

My thanks are due to Lieutenant-Colonel R. A. Ray, D.S.O., the Commandant of the Army School of Physical Training, for his kindness in giving me the opportunity of referring to the official publications.

POST-SALVARSAN JAUNDICE.

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THE purpose of this paper is to draw attention to the prevalence of jaundice occurring during the treatment of syphilis with arsenobenzol preparations, and also to show that it is relatively more frequent with some preparations than with others. Jaundice occurring in untreated syphilis is a well-recognised entity, and was well known long before the salvarsan era. Lancereaux claimed that it was first discovered by Paracelsus, a noted physician, early in the sixteenth century, but the credit for definitely establishing the association between jaundice and syphilis is due to Gubler, who, in 1853, published a monograph in which he described five cases. He maintained that, as it occurred at the time of the eruption of the secondary rash, it was probably due to a similar condition developing in the mucous membrane of the bile-ducts. Jonathan Hutchinson refers to two cases which were recorded by Wilks in the Pathological Transactions for 1867. During the later stages of the disease it may be associated with cirrhosis or gummata of the liver. Icterus is, however, an infrequent occurrence in untreated syphilis at any stage. Werner, in 1897, noted it 57 times in 15,799 cases—i.e., 0·37 per cent. Scott and Pearson,[1] in a recent analysis of 2243 army cases, met with it twice. My own figures bear out the infrequency of the complication, for I have only seen one case, that of a woman, in the last 1200 patients. Post-mortem records of this condition occurring during the generalisation stage are not numerous, for deaths at this stage are uncommon. It would appear that the pathology is not always the same, for it has been by various authors ascribed to duodenal catarrh, pressure of lymph glands, affection of the blood vessels of the portal canal, catarrh of the bile ducts, and also to the direct action of the toxin of the *Spirochæta pallida* on the hepatic cells That the *Spirochæta pallida* has a predilection for the liver is a well established fact, for in deaths from congenital syphilis that organ is found to be more affected than any other abdominal organ

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[1] American Journal of Syphilis, October, 1919.

Rolleston[2] states that the diffuse pericellular cirrhosis of congenital syphilis is regarded as being pathognomonic, and he is inclined to think that the most probable explanation of the jaundice in the acquired form is a catarrhal condition of the small hepatic bile ducts, which is merely part of a general syphilitic hepatitis, and that the change in the liver is probably a pericellular infiltration, with small round cells, like that seen in hereditary syphilis

The theory of the direct action of the toxin on the hepatic cells appears to find favour with most observers The jaundice is well marked, and is slow to disappear unless treated by anti syphilitic remedies

Since Klausner[3] first recorded salvarsan jaundice in 1911, there have been numerous articles in continental and American journals relating additional cases Pulvermacher[4] related 9 cases, and in a further communication in April, 1919, 16 cases, being 2 75 per cent of cases during 15 months Hermann Fabry[5] recorded 12 cases Friedmann[6] 14 cases, nearly 3 per cent Harrison found 0 6 per cent at Rochester Row Fenwick, Sweet, and Low[7] described 2 fatal cases Scott and Pearson,[8] in an admirable contribution to the literature of the subject, gave a record of 39 cases occurring at a military hospital, out of a total of 2243 cases treated From July, 1919, to the end of April, 1920, 47 cases were met with at the two Sheffield syphilis clinics, 20 of these were patients attending the Royal Infirmary, and I am indebted to Dr E F Skinner for very kindly giving me full notes of the 27 patients suffering from jaundice he saw at the Royal Hospital In March of this year, in order to ascertain the incidence of jaundice occurring after salvarsan injections, I addressed a circular letter to the medical officers in charge of 32 of the large clinics in England and Wales, asking for their information on the subject From the 13 who kindly replied I have obtained the following facts, (1) that in these clinics novarsenobillon (N A B) and neokharsivan (N K) are almost exclusively used, (2) that jaundice was rarely met with during 1919, for at 11 of these clinics no case was noted One recorded 1 case, and 5 cases were seen at a large clinic in the south of England One medical officer kindly informed me that he had had 3 cases during the first three months of this year, and another had had 2 cases in the same period I have no record of the actual number of cases treated at the clinics referred to above, but the total must exceed many times the number of cases treated at the clinics in Sheffield during the same period It would therefore seem that the number of cases in which this complication has occurred in Sheffield is exceptionally high The clinics presided over by Dr Skinner and myself are entirely independent of one another, but I think that the routine treatment of syphilis is approximately the same at both There are differences in the method of intravenous injections, to a certain extent in the choice of arsenobenzol preparation, and in mercurial medication These variations I shall refer to in detail later

Clinical Similarity of the Attacks to Ordinary Catarrhal Jaundice

Clinically, the attacks are usually very similar to the ordinary catarrhal jaundice The patients often have prodromal symptoms, such as nausea and anorexia, the icterus is well marked, the urine as in catarrhal jaundice, the fæces are usually to a certain extent pigmented, the liver is sometimes slightly enlarged, but in none of my cases was either the liver or spleen palpable There is, as a rule, little pruritus The patient usually recovers in two to six weeks Cases, however, have been recorded which have commenced as apparently a mild attack, but have become progressively worse, and terminated as acute yellow atrophy For this reason alone, although this occurrence is rare, jaundice developing either before or after treatment of syphilis is of extreme importance Even the average mild attack causes considerable discomfort to the patient and usually necessitates his absence from employment owing to the feeling of malaise and his unsightly appearance The patients do not associate the illness with the antisyphilitic treatment, and usually consult their private medical attendant It is, therefore, not improbable that the percentage suffering from this complication is higher than the figures record

The following table is an analysis of the 47 cases referred to above —

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[2] Diseases of the Liver 1905
[3] Med Woch 1911
[4] Dermat Zeit April 1917
[5] Med Klin 1918
[6] Derm Ztschs 1918 No 12
[7] Brit Med Jour April 20th, 1918
[8] American Journal of Syphilis October 1919

ANALYSIS OF CASES AT SHEFFIELD V D CLINICS

Cases at Royal Hospital

During—	Cases	During—	Cases
September 1919	2	February 1920	3
October	3	March	5
November	0	April	5
December	6		—
January 1920	3		27

400 cases of syphilis were treated from September 1919 to end of April 1920 The arsenobenzol preparation used in each case was novarsenobillon This preparation has been used exclusively since April 1919

7 had had a previous course No jaundice
1 had had two previous courses No jaundice
3 had W R negative through the course
24 had W R positive during the course
The stage of the disease was as follows 1 primary 22 secondary 4 tertiary

In 1 jaundice developed after	3rd injection
1	4th
2	5th
2	6th
13	7th
5	8th
1	9th
2	10th

The onset of the jaundice after the last injection was as follows —

3 developed jaundice	within 1 week
7	during 2nd
1	3rd
5	4th
7	2nd month
4	3rd

Two of the patients were husband and wife Mercury given in all cases either intramuscular or inunction All completely recovered

Cases at Royal Infirmary

During—	Cases	During—	Cases
July 1919	1	January 1920	1
August	2	February	0
September	1	March	3
October	1	April	0
November	3		—
December	8		20

645 cases of syphilis were treated during the period July 1919 to end of April 1920 60 per cent had kharsivan intravenously no jaundice supervening The remainder had N A B (*novarsenobillon*) *intravenously and 20 of these developed jaundice* In about 40 per cent of all intravenous injections N A B had been used since June, 1918 without a single case of jaundice until July 1919

4 had had previous course No jaundice
3 had W R negative through the course
17 had W R positive during the course
The stage of the disease was as follows 5 primary 13 secondary, 2 tertiary

In 1 jaundice developed after	2nd injection
0	3rd
2	4th
2	5th
1	6th
7	7th
2	8th
1	9th
4	10th

The onset of the jaundice after the last injection was as follows —

3 developed jaundice	within 1 week
1	during 2nd week
3	3rd
2	4th
4	2nd month
3	3rd
4	4th

Two of the patients were husband and wife Mercury given in all cases orally All completely recovered

From the above table it will be observed that jaundice may occur at any stage of the disease, and that it may occur during or after a second course of intravenous treatment, although there have been no such effects after the preceding course. It may develop after a small dose, but most of the patients have had what I think may be termed a moderate course. The free interval between the last injection and the commencement of the jaundice varies between a few days and four months, and though not given in the above table, the amount of the drug used has no relation to the free interval or to the duration of the attack. All these facts are in accordance with the experience of other observers. This complication has been attributed by some to syphilis alone, and by others, with more reason, to the combination of the syphilo-toxin and the arsenical preparation. Against the former theory is the fact that my 20 cases occurred in the group which had a certain arsenobenzol preparation, yet there was no case in the group which received a different preparation. It is also of interest to note that two non-syphilitic cases have been reported as developing jaundice after treatment by arsenobenzol, one, a lichen planus, quoted by Pulvermacher, the other mentioned by Zimmern,[9] a man suffering from malaria. Scott and Pearson[10] suggest that the liver is damaged by the treponema toxin, and is rendered more susceptible to the action of the arsenic. They divide cases into four groups as follows:—

Group A.—Occurring before treatment, due to diffuse syphilitic hepatitis.

Group B.—Occurring early after injection of 606, due to diffuse syphilitic hepatitis and superadded Herxheimer reaction.

Group C.—Occurring later during the course of treatment, probably syphilitic hepatitis, and too few spirochætes to cause a Herxheimer reaction, but the additional arsenic is too much for the liver to deal with.

Group D.—Late arsenical jaundice. They infer that the condition is much the same as in Class C, but there is probably less hepatitis.

It has also been suggested that it is entirely dependent on overdosage (Heller), and on the continent inanition due to war conditions has been held responsible.[11]

Faulty Technique a Possible Factor.

I think that an examination of the above table will show that, ingenious as these theories may be, there is certainly another factor necessary for the production of the complication; otherwise it is impossible to explain how a series of cases of jaundice should suddenly occur at two neighbouring clinics when precisely the same routine treatment had been practised, at the one for 13 months previously, and at the other for six months previously, without any such complication occurring. A reasonable hypothesis would be that it is due to faulty technique, but this I am unable to substantiate, for I am assured by Dr. Skinner that he has always used the gravity method for the injection of N.A.B., and that the detail of the preparation has always been the same. I can also assert that at the clinic which I control there has been, as far as I am aware, no variation in the preparation and administration of the N.A.B. for nearly two years. It has always been dissolved in 10 c.cm. of boiled distilled water and injected intravenously by means of a syringe.

The preparation of the solution for injection is exceedingly simple, but when a large number of patients have to be treated it is, I think, conceivable that error may unintentionally be committed. Cracks in the capsules containing the drug may be overlooked, thereby allowing oxidation. Contamination of the boiled distilled water may easily occur unless this is kept under strict supervision. Also traces of the drug may adhere to the glass apparatus after being used for previous injections and become oxidised by exposure to air. The varying duration of the free interval between the onset of the jaundice and the last injection, which, as previously mentioned, may be even as long as four months, makes it exceedingly difficult to eliminate the possibility that such errors in technique are the cause.

I am informed by Messrs. May and Baker that there has been no alteration in the manufacture of N.A.B., and that they have not received one single complaint connecting the drug with the production of jaundice. If the record supplied to me from the 13 clinics referred to above can be accepted as showing the average incidence of jaundice, it is incompatible with a recent suggestion that increased toxicity of the N.A.B. is the exciting cause. No single batch of the drug was common to all cases. Doses from nine different batches were used over the period in which the jaundice occurred. But it is significant that, as stated at the foot of the first table, no jaundice supervened after intravenous kharsivan injections. Again, referring to the 39 cases recorded by Scott and Pearson, one finds that with the exception of the fatal case in which the particular arsenical preparation used is unknown all had N.A.B. sometime during the course. Some of them, it is true, had other preparations in addition. All the cases recorded by Pulvermacher (25), Fabry (12), and Freidmann (14) had had neosalvarsan injections.

Ravaut's statistics of the French Army are as follows:—

7 cases of jaundice occurred after 37,352 injections of N.A.B.
8 „ „ „ 35,826 „ N.S.
1 case „ „ 9,215 „ S.

I think it may therefore be definitely assumed that the use of arsenobenzol preparations is conducive to the production of jaundice during the treatment of syphilis and that it is more commonly met with following the injection of the 914 (neosalvarsan) group than after the 606 group (salvarsan). It is also evident that the percentage of cases is very irregular in its distribution, and that therefore there must be at times another factor responsible. In support of this contention is the outbreak which took place at a German hospital. This was described by Franz Muller in a discussion at the Berlin dermatological meeting on March 18th, 1919; 22 cases occurred at the Ingolstadt Hospital from December, 1917, to March, 1918. Fourteen of these proved fatal and eight recovered. Neosalvarsan in total doses of 1·65 g. to 4·05 g. was administered over a period from 5 to 12 weeks. The technique and dosage were identical with that which had been used in numerous other cases from October, 1917, onwards, without any complications occurring. The mild cases began with fever and vomiting, which subsided in about eight days. The liver in most of the cases was enlarged.

The fatal cases had a similar onset, but usually with a higher degree of fever, followed by an afebrile second stage. During the second stage there were persistent vomiting, reduction in the size of the liver, abdominal pain, and, after a few days, coma and death. Post mortem the liver showed a high degree of central necrosis and fatty degeneration. He also mentions the remarkable fact that one of the medical staff, in making a post-mortem examination of the first fatal case, accidentally cut himself. Within a few days he developed acute yellow atrophy of the liver and died. His W.R. was negative, and, as far as is known, he had neither suffered from syphilis nor had he received any organic arsenic preparation.

Conclusion.

With such evidence before one it is necessary to consider whether an infection resembling Weil's disease may not be the exciting factor in the causation of the post-salvarsan jaundice which occurs in what, perhaps, may be termed epidemic form. The Sheffield cases were undoubtedly of a milder type than those at Ingolstadt, but the comparatively sudden appearance of a series of jaundice cases after many months' absolute freedom from any such complication in each clinic suggests a similarity of the cause in both towns. It is interesting to note that at both the Sheffield clinics the cases included one example of husband and wife suffering from post-salvarsan jaundice.

This grouping of cases has been described by other observers, and although there can be no definitely positive deduction in favour of an infection being responsible for the occurrence, I think the possibility is worthy of further consideration

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[9] Derm. Zeit., March, 1919.
[10] Amer. Jour. Syphilis, Oct., 1919.
[11] Freidman: Dermat. Zeit., 1918.

Summary

1 That a considerable number of patients suffer from jaundice following the injection of 606

2 That it occurs relatively more frequently after the 914 group of arsenobenzol preparations (neosalvarsan, neokharsivan, novarsenobillon, &c)

3 That it may occur in epidemic form

4 That the causation is as yet undetermined

SURGERY OF CONGENITAL HYPERTROPHIC STENOSIS OF THE PYLORUS

A SERIES OF TWELVE CASES

BY RICHARD WARREN, M D OXON , F R C S ENG ,
SURGEON TO THE LONDON HOSPITAL SENIOR SURGEON TO THE EAST LONDON HOSPITAL FOR CHILDREN

THERE seems to be very great doubt as to whether medical measures can cure any cases or at any rate more than the most trifling percentage of cases, of true hypertrophic stenosis of the pylorus Thus Gray and Pirie, in THE LANCET of Sept 20th, 1919, quote 54 cases at Great Ormond street, treated for the most part medically, with a mortality of 80 per cent A collection of cases at the East London Hospital for Children gave 30 cases treated medically, which all died except one, and in this patient the diagnosis of congenital hypertrophic stenosis was finally questioned by the late Dr Eustace Smith From time to time physicians have published series much more favourable to the results of medical treatment The probable explanation is that there has been a confusion between pyloric spasm and hypertrophic stenosis of the pylorus, and the natural conclusion is that the bulk of cases which recovered under medical treatment were of the former class The diagnosis of a hypertrophic pylorus before the abdomen is opened is not altogether easy and practically turns on one point—the presence of the little hard pyloric tumour resembling in shape and size a small acorn The other signs—projectile vomiting, visible gastric peristalsis, wasting, and constipation—may be present in both conditions On many occasions the presence of the small tumour has been suspected rather than definitely felt In one only of all the cases on which I have operated for suspected hypertrophic stenosis did I find a simple pyloric spasm or ring constriction without hypertrophy In all the others there was the characteristic hypertrophy and the pyloric swelling resembling the uterus in its hardness and resilience It is difficult to conceive of this tumour disappearing under such measures as gastric lavage, further, the tumour has been known to persist for several months in a patient relieved by gastroenterostomy, who died from other causes If, then, surgical measures give reasonably good results, the obvious conclusion is that they should be undertaken as soon as the diagnosis can be made with any sort of probability, for it is the weakening under prolonged medical treatment, to which these cases have often been subjected, which renders surgical procedures so difficult and often fatal

I have records of 12 cases treated surgically, for the most part by gastro jejunostomy, with the following results —

Operation	Lived	Died
Gastro jejunostomy	6	4
Pyloroplasty	0	1
Ramstedt's operation	1	0

The average age at operation was 7 weeks the average weight 7 lb 2 oz , and the average time at which vomiting was noted to commence was 3 weeks

Comparison of Various Operations

I commenced by using gastro-jejunostomy because it is a type of operation which an abdominal surgeon is constantly employing in various forms in which he has acquired considerable facility, and which must relieve any sort of pyloric stenosis The success met with in the first case done ten years ago encouraged me to continue this method This patient when last seen a few months ago was a healthy schoolboy who seems to have suffered no inconvenience from the vicissitudes through which he passed in the early months of his life Divulsion of the pylorus (Loreta) never looked promising to me on account of the massive proportions of the hypertrophic pylorus in the cases I have encountered and uncertainty as to the amount of stretching necessary to obviate the stenosis, hence I have never performed this operation Some years ago before learning of Ramstedt's operation I attempted pyloroplasty in a case which seemed too weak for gastro jejunostomy In dividing the muscle of the pylorus a small hole was made in the mucous lining, and after mending this I fully realised what I had previously suspected, the impossibility of suturing the muscles so as to render the pylorus more patent Any suturing of the hard muscle only converts the original small circular opening into an equally impervious slit This unfortunate experience made me rather shy of dealing with the pylorus directly Ordinary posterior gastro jejunostomy seemed to be the operation of choice, the results were not ideal, but greatly superior to those obtained by medical means especially if the operation was not too long delayed Ramstedt's modification of pyloroplasty (division of the pyloric sphincter down to the mucosa without suture) seemed to present several technical advantages In the first place, the incision to bring the pylorus out is a good deal smaller than that needed for a gastro jejunostomy, moreover, it can be made higher up the abdomen so as to come over the liver, which in infants comes some distance below the costal margin This has the great value of preventing prolapse of intestines should the little patient strain Small infants are not easy to anæsthetise satisfactorily, and even with the greatest care are likely to become too lightly anæsthetised and to strain Prolapse of intestine is a most awkward complication of these operations and of those for acute intussusception and is likely to cause sufficient shock to turn the scale against the patient The small high incision of Ramstedt's operation practically obviates this danger, and the fact that no suturing of stomach and intestine is needed reduces the time of the operation by about 10 minutes The only real difficulty is to avoid injuring the mucosa at the duodenal end of the pyloric hypertrophy when dividing the muscle of the pylorus, owing to its closer attachment here to the muscle The division must be made with the greatest care, and if a hole in the mucosa be made it must be closed with a very fine suture, taking up the submucous coat only This accident happened in the one Ramstedt operation in this series and did not appear to affect the convalescence which was very similar to that in the cases treated by gastro jejunostomy

Post operative Conditions

The main thing noted was the cessation of projectile vomiting The gain in weight was variable at first, often going up steadily for a week or so and then remaining stationary for some days or dropping for a while There was seldom a steady gain for the first few weeks, but after that the gain was often exceedingly good The average gain in weight in the gastro jejunostomy cases was 5½ oz a week when observed for six to ten weeks but for the first two or three weeks the gain was often very slight in spite of varied plans of feeding The case in which Ramstedt's operation was done is a good example of this During the first two months the gain was at the rate of 3 oz a week, but in the next month at the rate of 10 oz , making an average for the three months of 5 oz a week There is evidently a considerable disorder of metabolism in these infants possibly, as suggested by Gray and Pirie a deficient activity of the pancreas and disordered suprarenal function Various diets were employed including peptonised milk, whey, modified milk, and pure citrated milk It was often necessary to experiment in order to find the most suitable diet from time to time

Conclusions

1 Most cases of congenital hypertrophic stenosis of the pylorus die if treated medically

2. Surgical measures, including cases which have become debilitated by overlong expectant treatment, have cured at least 60 per cent., whether by gastro-jejunostomy or Ramstedt's operation (Gray and Pirie).
3. Where the diagnosis is reasonably certain from the finding of a small tumour, presumably the pylorus (with the other signs of pyloric obstruction), operation should be undertaken without delay, and should be regarded as the normal treatment.
4. Where the diagnosis is not absolutely decided medical measures (gastric lavage and small feeds) may be continued for a few days while careful frequent examinations are made for the pyloric tumour. If projectile vomiting persists, fæces remain abnormal, or the weight does not increase, a laparotomy should be done high up in the abdomen and the pylorus hooked up through a small incision and examined.
5. Although there is not much difference between the percentage recovery of the cases in this series treated by gastro-jejunostomy and the Great Ormond-street series treated by Ramstedt's operation, the latter will probably be the operation of choice in the future on account of its less severe character. If employed early in all cases the results could probably be considerably improved.
6. There is a great disturbance of metabolism in these infants, rendering the after-treatment a problem in feeding to be solved in each case individually.

I must express my thanks to my house surgeon, Mr. Bettinson, for his care in collecting the notes of the Shadwell cases.

Weymouth-street, W.

FISTULA OF THE PAROTID:

AN IMPROVED METHOD OF CURE.

BY HENRY CURTIS, B.S., M.D. LOND., F.R.C.S. ENG.,
SURGEON TO THE METROPOLITAN HOSPITAL; LATE SURGEON TO THE MILITARY HOSPITAL, ENFIELD-ROAD, E., AND TO THE HOSPITAL FOR FACIAL INJURIES, BROOK-STREET, W.

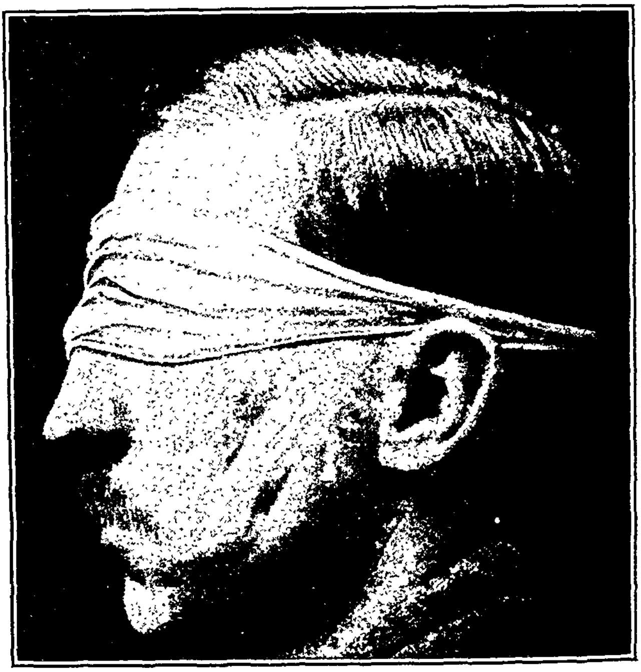
IN THE LANCET of June 7th, 1919, Mr. Percival Cole wholly condemns seton operations for the cure of complete fistula of the parotid duct, as they usually fail, he says, and render more difficult any subsequent reparative procedure. In the two cases on which he performed the operation he advocates "several previous attempts to cure had been made by seton methods, the only result being to diminish plasticity by the increase of scar tissue, and so add new difficulties to those already existing."

Starting with the principle that "if the duct will not meet the mouth cavity, the mouth cavity must be made to meet the duct," essentially the procedure recommended by Mr. Cole would appear to be based on the older operation, quoted in my article on "Affections of the Salivary Glands" in the "Index of Treatment," of freeing the portion of the duct proximal to the fistula and bringing it into the mouth through an opening at the level of the anterior border of the masseter. Mr. Cole's modification consists in leading the freed duct through the slit-up apex of a pouch of buccal mucous membrane, caused to bulge into the wound made by a generally horizontal skin incision through the cheek; the pouch when slit is sutured to the deep structures of the cheek, and the resected end of the duct then anchored to the mucous membrane within the mouth.

This operation in the two cases he records has given Mr. Cole excellent results; but, in my opinion, if cure can otherwise be effected it should not at once be resorted to. Though it is true that an ugly scar, if present, can at the same time be excised, Mr. Cole's operation itself involves a fresh cheek wound, which is not so inevitable as might be assumed. The following case, where there were two fistulæ, and one other case were treated successfully by a modification, devised by me during the war, of an old procedure which Mr. Cole, presumably, would include in the category of the condemned seton operations.

Excision of the two huge scars shown in the accompanying photograph, in the centre of each of which was a salivary fistula, would have been inadvisable, even if practicable, as the fistula treated in the anterior (upper) scar healed straight away and that in the posterior (lower) one later on, without fresh incisions.

If such a test case can be so cured, the method in its improved form may be deemed worthy of more extensive trial before resorting to Mr. Cole's open operation, suitable as it is, if the simpler method fails.



A case of two salivary fistulæ, one in each of the linear scars seen in the left cheek, cured by the method described in the text.

Technique of Operation.

The original method is as follows:—

The finest of drainage-tubes, threaded with silk at both ends, is attached to the eye of a probe, the fine point of which is insinuated into the mouth of Stenson's duct and brought out on to the cheek, leaving the tube in the duct. The silk threads are tied over the cheek; after four days they are untied, the tube is dragged some way on to the cheek, and about ¼ in. is removed from the outer end. To the outer end of what remains a fresh thread is attached, and the tube dragged back into place, thread, however, now replacing in the track the removed portion of tube. In the same way, at intervals of four days, the rest of the tube is gradually shortened, until by the time it has been completely removed leaking from the fistula has almost ceased. If there is recurrence of leaking the procedure is repeated.

By dragging the tube across from the distal into the proximal portion of the duct, thus establishing direct continuity and correct alignment of these two portions, the results can be much improved upon. It is quite easy to insert a fairly large ophthalmic probe through the fistulous opening on the cheek into the proximal portion of the duct. The opening in the duct itself naturally lies in the floor of the fistulous opening at a varying depth from the surface. In the cases recorded by Mr. Cole there was a slit in the outer wall of the duct proximal to the stenosed end, this slit being the remains of either the original wound or of the lumen of the completely divided duct, kept open by the constant flow of saliva. In other cases, as the present writer has observed, the completely divided end of the proximal portion of the duct, as the result of scarring, is directed outwards, so as to lie sometimes immediately beneath the orifice in the skin, and a probe can be at once passed obliquely inwards and backwards along the duct. This displacement, in relation with the upper end of the distal portion of the duct, must be remedied for cure of the persistent fistula, and the procedure now recommended is directed to restoring the continuity of the divided ends.

Leaving the probe in situ, or reintroducing it later, the finest drainage-tube, threaded at both ends with "black ophthalmic D" fishing-gut, is inserted into Stenson's duct from the mouth, and its outer end dragged on to the cheek in the manner already described. A non-cutting round intestinal needle is now threaded on to the suture attached to the outer end of the tube and removing the probe left in the proximal end of the duct the needle is carefully introduced into the duct for about 1 inch and its point then made to puncture the duct and emerge through the cheek dragging with it the suture The tube is thus brought across from the distal to the proximal portion of the duct and the divided ends are placed in continuity The suture is fastened by a loop around the ear and to the loop is attached the other suture fixed to the inner end of the tube and brought out of the mouth A collodion dressing repeated daily seals the fistulous opening and seems decidedly to facilitate healing

The inner or oral end of the tube is dragged down and shortened by about ¼ inch every fourth day until it has been completely cut away The suture may be allowed to remain for some days longer if leaking persists

In the photograph the minute scar at the point of exit of the suture in the case of the lower of the two fistulæ is seen, situated about midway between the angle of the jaw and the tip of the mastoid process This fistula proved to be in an unusually large duct coming from the process of the parotid which extends inward from the deep surface of the gland and projects under the mastoid process The patient was a soldier, severely wounded on the left cheek and elsewhere by shell-fire on the Vimy Ridge April 9th, 1917, who was admitted to the Enfield road Military Hospital, under my care, on April 14th, 1917 It was not until August 3rd, however, that the two fistulæ were operated on, one in the centre of the anterior, and the other in the posterior of the extensive, and almost parallel, curvilinear wounds, surrounded by much scar tissue, as is seen in the photograph Both fistulæ treated the same day by the method here advocated healed rapidly, and the anterior one remained closed The posterior one leaked from time to time, and the operation was repeated on Oct 9th 1917, rapidly and finally closing it The patient was seen some months later, in 1918, permanently cured In an earlier case a single fistula, treated by the same method, healed rapidly and permanently

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THE ASSESSMENT OF HAND INJURIES

BY J J SCANLAN, L R C P & S EDIN , D P H

THE introduction of the Workmen s Compensation Act, 1906, called for the assessment of a large number of cases of hand injuries The war has increased the number tenfold All over the country medical men, either on military or pensions boards, are engaged in examining and assessing men with damaged and mutilated hands and it is very desirable that uniformity should be aimed at

Anatomically, the hand resembles the foot, surgically, they differ At the wrist and ankle respectively we have the well known Colles and Pott s fractures Below the ankle we have the equally well known operations of Symes Chopart, and Lisfranc In the hand we have no such well known operations and this makes the assessment of hand injuries so difficult as compared with the foot The Royal Warrant containing the schedule of fixed amounts for different injuries under the Ministry of Pensions can be bought over the counter, so that both sides know exactly where they are A Symes and a Chopart are both assessed at 50 per cent of the amount due for a total disablement and a Lisfranc at 40 per cent No such schedule exists for injuries involving the carpal and metacarpal bones

It is not only the absence of a fixed schedule for injuries of the carpal and metacarpal bones which causes trouble in assessment Difficulties arise from faulty nomenclature and the use of expressions which are not strictly anatomical One has only to peruse three or four reports dealing with the same hand injury to appreciate this I have seen scores of medical reports rendered useless by the fact that the elementary division of the skeleton of the hand into carpal, metacarpal and phalangeal bones has often not been kept in mind The anatomy of the hand might well be taught with a little more clearness in some of the medical schools and text books I have seen medical men of experience differ over which were the knuckle joints of the hand Whether the first metacarpal bone is a bone of the thumb is another point often in dispute

Civilian and Military Assessments

The assessment of hand injuries under the Workmen s Compensation Act is a very much more difficult and complicated matter than assessing in accordance with the Royal Warrant under the Ministry of Pensions This arises from two factors Under the Workmen s Compensation Act the man s occupation has to be taken into consideration, and there is no schedule of fixed amounts for definite injuries to guide one There are geographical limitations to one's knowledge, whilst one is supposed to be well acquainted with the decisions of the courts Both sides know by this time the relative values of different hand injuries and where common sense prevails needless expense over useless litigation can be easily avoided As a result of a Home Office inquiry, now being carried out in connexion with definite injuries under the Workmen s Compensation Act, it may be expected that this Act of Parliament will be improved by containing a schedule of fixed amounts on the same principle as the Ministry of Pensions

Assessing hand injuries in accordance with the Royal Warrant of the Ministry of Pensions, the schedule for definite injuries has to be strictly adhered to The right hand is assessed at 60 per cent , right thumb or four fingers at 40 per cent , two fingers 20 per cent There is a scale for minor injuries for individual fingers and parts thereof As stated above, there is no corresponding Symes, Chopart, or Lisfranc operation in dealing with the hand, so that injuries involving the carpal and metacarpal bones have to be assessed on general considerations No matter how great the mutilation of the right hand, the assessment cannot be over 60 per cent , the value of the entire hand Injury involving loss of the carpal bones nearly invariably implies loss of the corresponding metacarpal bones and phalanges We know the assessment for the loss of the whole hand and also the assessment for the fingers, so that there should not be any great difficulty in dealing with conditions existing between these two points The thumb is the most important factor and its presence or absence will seriously affect the assessment

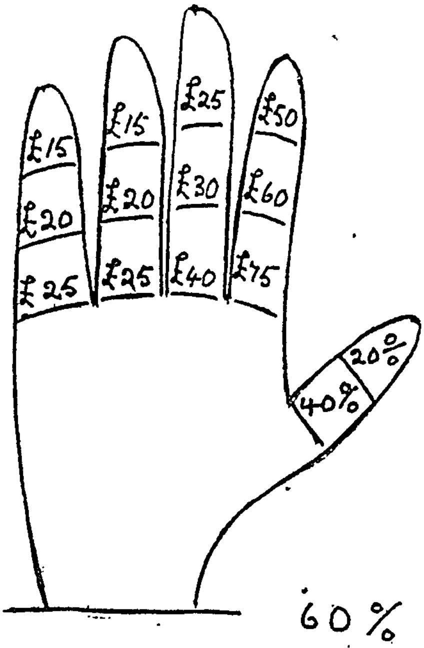
The assessments under the Ministry of Pensions must not be taken as any guide for assessing under the Workmen s Compensation Act At best they show how the Act would be improved by containing a schedule of fixed amounts for definite injuries

In assessing hand injuries it will be remembered that the function of the hand is manipulation, whilst that of the foot is locomotion Deprived of all five digits the hand is practically useless Loss of all toes interferes only in a minor degree with the utility of the foot

In reporting on hand injuries whether under the Workmen s Compensation Act or for the Ministry of Pensions the medical examiner will remember that his report will be perused and criticised and an assessment made from it by a colleague who devotes his whole time to this class of medical work To paraphrase an old saying, "An inch of diagram is worth a yard of description Failing a radiograph or photograph of the damaged hand, the simplest and most satisfactory adjunct to a medical report is an outline of the hand taken by running a pencil round the hand laid flat on a sheet of white paper For completion sake an outline of the other hand is desirable When these are supplied written description can be reduced to a minimum and common mistakes easily avoided To cite a common example a medical report states that "the third finger of the right hand has been amputated at the first joint ' To begin with you cannot be sure which finger is referred to as long as medical examiners continue describing fourth and fifth fingers The actual site of amputation cannot be determined till it has been ascertained whether the examiner means the metacarpal phalangeal joint or the first interphalangeal joint With an outline of the hand such ambiguity would be impossible

The Prognosis after Surgical Interference.

In assessing hand injuries the prospects of improvement by surgical interference will be kept in mind. The assessor will have the opportunity of utilising his surgical knowledge and of making suggestions to the parties concerned. A hand with one finger permanently ankylosed and bent into the palm may seriously interfere with the power of grip of the hand. Amputation is called for as the only means of restoring the usefulness of the hand. Refusal to undergo operation would be deemed unreasonable. Accidents arising in the employment of large corporations have the advantage that suitable work can be offered to men with certain disabilities. Our continental neighbours, owing to being State owners on a large scale, are in this position, instead of having to rely on the generosity of private concerns for the employment of disabled men. This is specially true when dealing with army pensioners. When an injured hand has soundly healed the question of change of occupation has often to be considered, and there are a variety of occupations open to men who are more or less one-handed. Considering the frequency of hand accidents amongst the industrial population the faculty of being ambidexterous should be acquired in early life.



Assessments for injuries in accordance with the scale of the Ministry of Pensions. Right hand, 60 per cent.; right thumb, 40 per cent.; four fingers (right hand), 40 per cent.; two fingers, 20 per cent. Ankylosed fingers same scale as for loss of fingers or parts thereof.

The assessment of hand injuries might almost be said to commence in the operation theatre. I remember a case in a casualty clearing station in France as an example. A man was brought in with a gunshot wound of the right hand. The proximal phalanx of the thumb was shattered, the distal phalanx undamaged. The thumb was hanging loosely on to the hand. Instead of amputation of the whole thumb, I advised clearing away the debris of the shattered first phalanx, "dropping down" the second phalanx and suturing its tissues to those at the metacarpo-phalangeal joint. This the operating surgeon did very neatly, and the man was sent down the line with a one-phalanx thumb, nail intact.

A diagram of the right hand, with appropriate assessments in accordance with the Ministry of Pensions, is appended to illustrate the facility with which assessments can be made when working to a fixed schedule, and it is to be hoped that the Workmen's Compensation Act will be improved on similar lines.

THE late Mr. David Evans, of Swansea, bequeathed £2000 to the Swansea General and Eye Hospital for the endowment of two "David Evans" beds.

THE ENTEROCOCCUS AS A FACTOR IN CERTAIN TYPES OF DYSENTERY.

BY S. M. ROSS, M.D. EDIN., D.P.H.,
BACTERIOLOGIST, DERBYSHIRE COUNTY COUNCIL;
AND
C. F. PECKHAM,
ASSISTANT BACTERIOLOGIST, DERBYSHIRE COUNTY COUNCIL.

THAT the enterococcus is very frequently the cause of a severe type of dysentery is not always recognised in this country, where this micro-organism has not been studied as abroad; in fact, in several of the most popular English bacteriological text-books it is not even described.

The organism was first described by Thiercelin, has also been described by Escherich, Tavel, Éguet, and Besson as an encapsulated streptococcus, and may be considered either as a saprophytic micro-organism which under certain conditions may become pathogenic or, as suggested by d'Este Emery, a pneumococcus which has largely lost its parasitic properties and become very pleomorphic.

If a microscopical examination only is made the organism is often called either a pneumococcus or a streptococcus, according to the form it has assumed, from the fact that it so closely resembles the pneumococcus and also occurs in streptococcus-like chains. It is, both in morbid material and in pure culture, strongly Gram-positive, and most frequently occurs as a diplococcus, of which the elements may be both lanceolate and of equal size, or unequal and one element rounded; a capsule is occasionally found.

In France it is regarded as a very common cause of enteritis in children and adults, as well as of infection of the liver; it is also stated to be the cause of some cases of broncho-pneumonia and of meningitis. The micro-organism is widely distributed, occurring in the alimentary canal, vagina, &c. Schmitz (1913) in bacteriological examinations of 3500 specimens in Germany found it only 15 times, and never in the sputum or stools in health.

The enterococcus is easily cultivated, growing at 20° C., though its optimum temperature is 37° C. Cultures on agar give small round isolated colonies, resembling at first those of the pneumococcus, though later becoming more opaque. On lactose-litmus agar it produces acid and the colonies are minute, resembling those of the streptococcus. At the end of seven days' incubation the colonies are still discrete, slightly larger, and more opaque. The growth on gelatin resembles that of the streptococcus, and the medium is not liquefied. In peptone broth there is general turbidity with deposit and clearing of the supernatant fluid after 24 hours, and it may or may not coagulate milk in which it does not grow well. In lactose, maltose, mannite, and glycerine it produces acid without gas, and it does not produce indol.

The organism is a facultative anaerobe, very virulent to mice, less so to rabbits. The enterococcus is very tenacious of life; according to Thiercelin it remains alive after four years.

An Interesting Outbreak.

An outbreak of a very severe type of dysentery, with a mortality of 42 per cent., occurred in the Chapel-en-le-Frith Workhouse in 1919. Dr. Francis G. Bennett, the medical officer to that institution, has kindly given me very full notes of the outbreak, and the available evidence showed enterococcus infection. Dr. Bennett ascribes the cause of the outbreak to the opening up of the floor of a ward, because the patients had been previously resident in the institution for years, had no suspicious article of diet, and had not, as far as can be known, been infected from outside agencies. No further cases have occurred since the cavity has been disinfected and filled up.

Considering the longevity of this micro-organism, this view of the cause of the outbreak is quite probable, but the debris was not sent for examination. The floor of the ward was disturbed at the end of the first week in March, and the first case of acute diarrhœa occurred on March 22nd, cases continuing to occur until April 7th, 1919. Dr. Bennett thus describes the outbreak.

The general symptoms were severe abdominal pains, acute diarrhœa, backache, headache, vomiting in the acute stage, in some cases sore-throat. The motions were foul smelling, containing blood and mucus in the fatal cases. The number of cases was 12; of these 5 died in 3, 6, 8, 8, and 9 days respectively.

Fæces from three of the fatal cases were sent to this laboratory. In all pus and blood were present, and the fæces were semi-liquid with a very foul smell. Direct microscopical examination of films from the fæces showed in each case a large number of Gram positive diplococci closely resembling the pneumococci, and short chains of oval diplococci were also present Plate culture on bile salt agar showed in 24 hours coliform colonies, no other colonies developed in three days but the organism has been found to grow on this medium On lactose litmus agar in 24 hours there were a large number of minute transparent colonies becoming in 48 hours gradually more opaque and about double the original size Further incubation did not seem to increase the size of the colonies which always remained discrete

The cultural reactions were as follows —

Peptone broth 24 hours growth with deposit
Agar 24 hours, minute transparent colonies
Gelatin growth not liquefied
Lactose acid
Maltose acid
Mannite acid
Glycerine acid
Milk clotted in 14 days
Peptone water 48 hours no indol

Blood from a female patient who subsequently died was procured, and at once agglutinated the enterococcus in dilutions of 1 in 30 to 1 in 120 Owing to pressure of work and shortage of staff at the workhouse hospital no further specimens of fæces were sent for examination

Two Isolated Cases

Two isolated cases, due to this organism, in which the clinical symptoms very closely resembled typhoid fever, may also be quoted, one case having been successfully treated by an autogenous vaccine

The first case was that of a young woman where the provisional diagnosis lay between typhoid fever (clinical symptoms, persistent raised temperature of 103-104° F marked general exhaustion, with abdominal tenderness and diarrhœa) and septicæmia A negative Widal reaction against typhoid and paratyphoid bacilli was obtained (patient had been ill for about three weeks) Cultural examination of the fæces gave a very abundant growth of the enterococcus and no bacilli of the typhoid dysentery group were found Vaccine treatment was refused and the patient was seriously ill for many weeks with a protracted convalescence

The other case which I am permitted to quote by the kindness of Dr Winstan St A St John, of Derby, was that of a married woman a trained nurse who during the war had been actively engaged in nursing and then went on a tour in France and Germany in 1919 While in France she became ill and though partially protected by inoculation in 1916 against typhoid and paratyphoid bacilli A and B the provisional diagnosis of her illness lay between colitis and typhoid fever The clinical symptoms were those of persistent raised temperature diarrhœa, and abdominal pain and tenderness with much exhaustion Patient had been ill for 25 days when her blood was sent for examination The Widal reaction showed slight agglutination in dilutions of 1 in 30 and 1 in 60, probably due to the previous protective inoculation but was completely negative in higher dilution and also completely negative as regards paratyphosus bacilli A and B

Bacteriological examination of the fæces gave a practically pure culture of the enterococcus and no bacilli of the typhoid dysentery group were found An autogenous vaccine was prepared from the enterococcus and administered in doses gradually increasing from 50 000 000 cocci every fifth day for five weeks by Dr St John Patient had a slight reaction to the vaccine after the first and second injection but none thereafter, and made a good recovery, prolonged somewhat by the fact that she had suffered from enteroptosis for years This patient had seven months afterwards symptoms of appendicitis, and the appendix was removed Emulsions made from the appendicular contents and plated on lactose litmus agar gave no growth of the enterococcus

Conclusion

These notes on cases which have cropped up during six months' routine work suggest the advisability of a definite search for the enterococcus in all conditions with obscure clinical symptoms somewhat resembling typhoid fever

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DEATH OF SURGEON MAJOR R R SCOTT —Ralph Robert Scott, M R C P Irel , L R C S Irel Surgeon Major Army Medical Service (ret), has died at his residence in Bath in his eighty ninth year The deceased officer was assistant surgeon to the 16th Regiment and on the staff during the Crimean War In the Indian Mutiny he was attached to the 8th Hussars and was on the staff in Sir James Hope Grant s flying column being present at the relief of Lucknow After the Mutiny he served in India and the West Indies Surgeon Major Scott had resided in Bath for the past 25 years and was highly respected One of his sons lost his life on the *Lusitania*

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL

◆

TWO CASES OF INTESTINAL OBSTRUCTION

BY W E TANNER, M S LOND , F R C S ENG ,
SURGICAL REGISTRAR TUTOR AND DEMONSTRATOR OF ANATOMY GUY S HOSPITAL

Two unusual cases, (1) obstruction of the small intestine by a large hair ball, and (2) strangulation of the small intestine by the appendix acting as a band, are here recorded

CASE 1 *Obstruction of the small intestine by a large hair ball* —E W a girl aged 7 was admitted to Guy s Hospital on March 12th 1920 She had been healthy until a year before admission when she had an attack of abdominal pain and sickness at first suspected to be due to appendicitis but diagnosed later as gastritis She recovered from this and was well until March 9th 1920 when she had an attack of acute abdominal pain with vomiting of green fluid The bowels opened twice on March 9th and on March 11th an enema was given with a small constipated result The vomiting continued until the evening of March 11th The abdomen was distended and paroxysms of pain were accompanied by peristalsis of distended bowel On admission pulse 130 temperature 97° F the abdomen was distended around the umbilicus not in the flanks with visible peristalsis of the small intestine On rectal examination the house surgeon Mr V F Lloyd felt a hard movable lump in the right iliac fossa Intestinal obstruction was diagnosed the cause being obscure

Operation —A right paramedian laparotomy was performed On opening the peritoneum clear fluid escaped the appendix was normal The small intestine was distended the cæcum collapsed and a hard movable mass was felt in the lumen of the ileum 4 inches from the ileo cæcal valve. The mass could not be broken up so it was milked through the ileo-cæcal valve and removed through an incision in the anterior wall of the cæcum because it was thought to be too large to pass the narrow part of the pelvic colon The cæcum and parietal wound were closed The mass was found to be a spherical hair ball 2 inches in diameter composed of the child s own hair matted together by intestinal fluid and a small amount of fæcal matter The mother said that the child had habitually bitten her hair since the age of 2 Neither the mother nor the child had observed if hair had been passed per anum before the onset of intestinal obstruction or after the attack of gastritis a year before The child was discharged in good health three weeks after the operation

In the literature[1] there are many records of hair balls in the stomach, but I have found no example of a hair ball causing obstruction in the small intestine

CASE 2 *Strangulation of the small intestine by the appendix acting as a band* —Henry J , age 64 was admitted to Guy s Hospital on April 13th 1920 He had suffered from asthma for 35 years When screwing a bolt on to some couplings on April 10th he was seized with acute abdominal pain He went to bed but the pain persisted The bowels had not acted since but there was no vomiting

On admission temperature 97° F pulse 80 A tumour was felt just below and to the right of the umbilicus There was tenderness and rigidity over the tumour but elsewhere the abdomen was supple Appendicular abscess was diagnosed and a right paramedian laparotomy was performed The great omentum was lifted from the surface of the tumour pus escaped and the lower 6 inches of the ileum were found to be gangrenous The appendix passed upwards and to the left and was attached by its tip to the front of the mesentery The gangrenous intestine was lying between the appendix and the front of the mesentery so that the former acted as a band strangulating the lower 6 inches of the ileum A lateral anastomosis was made between the transverse colon and a loop of ileum just proximal to the gangrenous portion and the great omentum was sutured over the anastomosis The appendix was then removed and gangrenous ileum resected the open ends of bowel being closed by double purse-string sutures The bowels acted on the second day after operation There was slight superficial suppuration of the wound at the end of four days but this subsided and the patient was discharged on May 10th

I am indebted to Mr R P Rowlands, surgeon to Guy's Hospital, for permission to publish these cases

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HAIR BALL IN THE ILEUM CAUSING OBSTRUCTION.

BY HAROLD R GIBSON, M D , CH B ,
RESIDENT MEDICAL OFFICER LONDON TEMPERANCE HOSPITAL

So far as I am aware this is the youngest case recorded in the English literature of a hair ball in the ileum causing obstruction

A boy aged 6 years was admitted to the London Temperance Hospital on Jan 24th with a history of vomiting for two days previous to which he had been quite well The bowels had not moved the previous day, but a few hours before admission he had passed a small constipated motion.

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[1] Wien klin Woch, Nov 16th 1899 Index Medicus since 1903

On admission he complained of slight pain in the umbilical region, but there was no tenderness or rigidity, and the abdomen moved freely with respiration. On palpation a tumour, which was slightly movable from side to side, could be felt in the right iliac fossa. The temperature was 98° F. and the pulse 94. An enema gave a very slight result. The child slept quietly all night. The following morning another enema was given and some small hard fæces were passed, but there was no blood or mucus. The abdomen was slightly distended, and coils of intestine were visible in the epigastric region.

Operation.—An operation was performed by Mr. James McClure. The abdomen was opened by a right paramesial incision. A tumour was found lying over the appendix, and at first sight appeared to be an enteric intussusception, but was found to be a mass in the ileum. It was movable in the intestine upwards but not downwards. It was moved up to a healthy part and the intestine opened by a longitudinal incision and the mass removed. The wound in the intestine was sutured and the abdomen closed.

The mass was 2 in. long, 1⅓ in. deep, and ¾ in. across, and consisted of hair tightly packed and arranged in concentric layers. In the centre it contained granular white matter resembling sebaceous material. The child made an uninterrupted recovery.

The patient, though a boy, had long hair, and on questioning the mother it was found that he had been in the habit of putting his hair into his mouth and eating it.

A SUCCESSFUL CASE OF

LATERAL INTESTINAL ANASTOMOSIS

THROUGH THE VAGINA.

By J. G. WATKINS, M.R.C.S., L.R.C.P. LOND.

ANASTOMOSIS in the vagina, though not desirable as a set operation, or if instruments for a laparotomy are within reach, may be a useful procedure in an emergency similar to the one here recorded. It may be comforting to know that a tragedy can be averted by its use, with the help of suture materials that are to hand in the meanest cottage.

The patient, a 2-para, youngest child 7, aged 44, was four months pregnant. The urine was laden wiih albumin, and as in her previous pregnancies she had had severe albuminuria, and two years ago had undergone a ventrofixation, it was decided to empty the uterus. On Feb. 24th, 1920, under an anæsthetic, the cervix was dilated to 22 Hegar. The dilatation was very easily accomplished, but little force being needed. I then punctured the membranes, and proceeded to extract the fœtus piecemeal with ring forceps. Everything appeared to be normal, except that on three occasions I brought out pieces of fat about the diameter of a sixpence.

Having cleared out the placenta and the whole fœtus, except the head, I drew down a tough, flat, shiny substance, which I took to be part of the neck, and I drew hard on it to extract the head. It appeared to stretch considerably, but for some time I suspected no abnormality, and not getting a very firm purchase I put a spare vulsellum through it. I then discovered that the flat band was a coil of empty intestine, without a mesentery, which must have been partly torn off when I observed the bits of fat and partly dragged from its attachment. I then for the first time explored the cavity with my finger and found a rent about 1½ or 2 inches long, running up from the internal os on the left side. The head was still in the uterus, but after an attempt to get a firm hold of it, it disappeared.

The patient's pulse now failed considerably, and it was thought impracticable either to remove her to a hospital or to wait until instruments for a laparotomy could be collected and sterilised, so some cotton and a sewing-needle were boiled and I made a lateral anastomosis after excising six inches of bowel and turning in the ends. After swilling it liberally with hot water I returned it through the rent into the abdominal cavity. No further search was made for the head, but a couple of strips of boiled lint were passed up through the laceration, and the patient was returned to bed and placed in the Fowler position. Later in the evening 1 c.cm. of pituitrin was given intramuscularly.

The patient's condition during the first week was very satisfactory; temperature not higher than 101·2° F., pulse 105 to 130. A very slight natural action of the bowels took place on the fourth day. On the fifth day she was given calomel gr. iii. in divided doses with no result, and on the eighth day ol. ricini ℥i., after which she had a rigor, with much abdominal pain, but the bowels were freely opened. The following day the temperature was 102·6°, but came down to a general level of 100·6° for the week, with frequent loose actions of the bowels. On the twelfth day she had slight phlebitis and thrombosis in the right leg, which soon cleared off. The third week began with the discharge from the vagina of two pieces of foul-smelling slough, each about 3 in. by 1 in., and griping abdominal pains. At this time, too, fæces began to pass through the vagina, and on the seventeenth day, as there was pain in the rectum, I examined it and drew out two fœtal frontal bones, the remaining cranial bones following during the next two days. After the end of this week no fæces passed p.v., and during the fourth week the patient suffered with constipation, accompanied by pain and dilatation, all relieved by a turpentine enema.

Since then her general condition has steadily improved, and now, at the end of two months, she is getting about, and the bowels act about thrice daily with liquid paraffin alone.

Remarks.

The case seems to me to be worth reporting, as it taught me some valuable lessons: Firstly, to be on guard in future when the cervix dilates with exceptional ease. Next, instead of scrupulously keeping the gloved finger out of the uterus to sweep it round above the internal os, to make sure that there is no laceration. Thirdly, to beware of anything in the uterus which is not obviously fœtal or placental. The intestine, as it came down, was not in the least like gut, but the bits of fat should have given me warning.

Bootle.

A CASE OF

RIGHT MASTOID SUPPURATION CAUSING LEFT-SIDED FACIAL PARALYSIS.

By E. WATSON-WILLIAMS, *M.C.*, M.B., B.C. CANTAB.,
OTO-LARYNGOLOGIST, SOUTHMEAD INFIRMARY, BRISTOL.

THE following case of a left facial paralysis produced by a right mastoid abscess is somewhat unusual.

A girl, aged 21, was admitted to the Bristol Royal Infirmary 25/10/19 complaining of pain in the right ear. The history was that both ears had discharged since infancy, but without pain or other symptoms. Seven days before admission there was intense pain in the right ear. The discharge was unchanged. Foments were applied and the pain became less on the fourth day. On the sixth day she was fairly well; that night she had two rigors, with *left* facial paralysis.

On examination the girl was found to be very ill, drowsy, and flushed. T. 100·2° F., P. 112, R. 32. She ached all over, but especially at the back of the head; there was well-marked head retraction. There was peripheral facial paralysis and external rectus paralysis on the left side; ptosis and some photophobia on the right. Pupils equal and active; fundus could not be seen. The right mastoid showed no tenderness or œdema, but there was slight redness behind the ear. The right sterno-mastoid was tender along the upper part of its anterior border. Air-conduction diminished both sides, bone-conduction appeared normal, but could not be absolutely determined in the mental condition of the patient. No vertigo. Lumbar puncture gave very turbid cerebro-spinal fluid under slightly raised pressure.

The point now was to decide which side was most to blame for the condition. The unimpaired bone-conduction on the left was taken as evidence that the facial was probably not involved at the internal meatus. But suppuration might nevertheless have determined compression in the canals. On the right side, however, there was very little pointing to mastoid involvement. The ptosis and tenderness of the sterno-mastoid were not of much help, and the patient allowed free percussion of the mastoid process. In view of her general condition and the meningitis action was imperative. It was determined to deal with the right side.

Operation.—A radical mastoid operation was immediately performed. The lateral sinus and internal jugular were thrombosed. The latter was tied at the level of the cricoid and all clot curetted out of both. The dura was exposed over the antrum, the cavity curetted clean, and the wound drained. The patient became very faint and the operation had to be completed rapidly. She rallied well; next day she was very much better and mentally clearer. The facial paralysis and ptosis were less marked. On the third day the temperature was just above normal, the facial paralysis and ptosis were practically gone; the left external rectus remained paralysed. Becoming restless at midday, she was delirious in the evening, sat up in bed, and fell back dead.

Post-mortem.—The right lung was extensively infarcted, suggesting a soft pulmonary embolism as the immediate cause of death. In the skull the thrombosis had recurred in the lateral sinus, going 1 inch down the occipital. There was an extradural abscess over the petrous on the right side, which had been drained at the operation. The dura over it was thick, soft, and red. An extensive fibrino-purulent mass reached from the curve of the sigmoid sinus across the mid-line and into the left posterior fossa, completely surrounding the third, fourth, and sixth nerves on both sides and the fifth, seventh, and eighth on the left only. The bone on the left showed no evidence of infection after stripping the dura.

The left facial paralysis and its curious diminution after operation on the right side were thus explained.

I am indebted to Dr. P. Watson-Williams for permission to publish these notes.

INSURANCE PATIENTS IN THE WEST OF ENGLAND.—The number of insured persons in Bristol is 155,825, and last year 409,495 prescriptions were dispensed. During 1919 the prescriptions dispensed for members of the Devon Insurance panel were 253,256, the cost being £285, compared with 214,957 in 1918, the expenditure in respect of which was £213. The Gloucestershire Insurance Committee report that in 1919 the prescriptions dispensed amounted to 123,000, against 134,100 in 1918.

Reviews and Notices of Books.

PROBLEMS OF POPULATION AND PARENTHOOD.

Being the Second Report of and the chief evidence taken by the National Birth rate Commission, 1918-1920. London: Chapman and Hall. 1920. Pp. clxvi + 423. 25s.

THE decline in the birth rate is one of those tiresome questions that accumulate as heavy clouds on our horizon, raising visions of disaster, which it is the troublesome privilege of the medical profession to see and help to avert. The National Birth rate Commission was privately constituted in 1908, at the instance of the late Bishop Boyd Carpenter and the National Council of Public Morals, with the support of the Government, who allowed the Principal Medical Officer of the Local Government Board and the Superintendent of Statistics under the Registrar General to serve on the Commission and contribute the official information found necessary. The first report[1] was presented to Mr. Walter Long, as President of the Local Government Board, in 1916. It was reviewed in a leading article in THE LANCET on June 24th, and was widely commented on both in the American and British press as the most candid, the most outspoken, and the most important statement on the subject yet issued. It showed that the birth rate in England and Wales had declined by about one third in 35 years; that this decline was mainly due to voluntary restriction by artificial methods, and was most marked in the more prosperous classes; and that the great incidence of infant mortality in the less prosperous classes did not counterbalance their greater fertility.

The Commission was reconstituted in 1918 and has now issued a second report on further inquiries suggested by Mr. Long. The fresh terms of reference included specifically the progress of the legitimate birth rate, the causes and prevention of the illegitimate birth rate, the influence of fœtal disease, of venereal disease, of housing and economic factors, of the industrial employment of women, the distribution of population and sexes throughout the Empire, the qualitative aspects of the birth rate, the uses of the Census and of the coming Ministry of Health in racial reconstruction after the war. Of 41 members, 12 were women, 14 were medical (including one woman and six past or present medical officers of health), 10 ministers of religion, and several well known men and women in social work and public affairs. Except for one member who died and nine who were precluded by their official position or absence from signing, this is an unanimous report, with certain important reservations on the moral issues involved. 423 pages are occupied by the evidence of the 46 witnesses, all in their several lines of outstanding importance. The book is more a symposium than an official report, easy to read, of fascinating interest, and showing a marked advance in the practical proposals discussed and to some extent recommended.

The birth rate continues to decline. Having declined by one third in the previous 40 years to 23·8 per 1000 of the population in 1912, the birth rate for England and Wales fell during the war to 17·7 in 1918, while the proportion of illegitimate to all births rose from 4·3 to 6·3 per 1000. The corresponding figures for 1918 for Scotland were 20·2 and 7·9, for Ireland 19·9 and 3·1. The birth loss due to the war over and above the decline which might have been expected from the downward curves of pre war rates is estimated at 543,087 for England and Wales, and from 650,000 to 700,000 for the United Kingdom. Against this may be set a decline in infant mortality from 105 per 1000 births in 1914 to 97 in 1918. The fall has been less in the Dominions—to 25·3 in Australia in 1918, 25·7 in New Zealand, and 29·0 in South African whites in 1917, while in the unoccupied departments of France it fell from 18·0 in 1914 to 10·4 in 1918. (The loss of births to the German Empire from all causes during the war has been reckoned at 3½ millions.) The differential quality of this decline is also now a certainty, the decline showing itself especially in the more successful families, as well in those who have risen from the ranks during the past century as in those whose position is of long standing. The Commission asks that the facts required for further enlightenment as to the parallel course of these processes in the Dominions, and as to food supply and other kindred matters, should be obtained in future simultaneous censuses throughout the Empire, while other relevant facts might be obtained by an anthropometric department in the Ministry of Health.

The national and international dangers are no longer really in dispute. Race suicide has begun. Mr. Harold Cox and Mr. J. M. Robertson may see value in a declining population, but this view requires a good deal of philosophy for its quiet acceptance. Sir Henry Rew, as Director of the Food Ministry, shows that this country before the war produced only half its food supply, and that even if production were increased to a maximum it could not completely support even the present population. We must look overseas for some at least of our food to be bought by our manufactures; and overseas there is room for boundless population. With the losses and lessons of the war ringing in our ears, the responsibility of the vast imperial estates, held by a mere 15 millions of white people apart from the 45 in these islands, demands the highest possible birth rate consistent with quality; and from the experience of the Oversea Settlement Committee and of the Salvation Army the report gives useful suggestion for the furtherance of migration within the Empire. The need for more equal sex distribution also goes to the root of morals, and an appeal is made on these grounds to the female electorate. The strength of a community obviously depends on the quality as well as on the numbers of its people, but even bare numbers contribute also to its quality. For the quality, even the happiness of its life and the efficiency of its work depend on genius and leadership in research, in æsthetics, in thought, and in action; and the larger the field of selection the better.

The Commission, therefore, makes straight for the main proximate cause of the decline in births—the deliberate restriction of child bearing—which now operates dysgenically throughout the Western world. The restriction of families as a habit began with the educated and professional classes and is rapidly spreading throughout the community. But the poorest, most thoughtless, and least responsible strata will be little affected by this tendency, while countless agencies will continue to preserve their offspring.

A valuable chapter on the ethics of voluntary restriction results in certain agreements on principle. A definite pregnancy at least should not be terminated, except under medical advice and action. Persons likely to transmit serious physical or mental taint should not have children. No married person should refuse parenthood on selfish grounds. No preventive means should be used that may injure the health of parents or child. Society should remove from parents those disabilities for which they are not to blame. The young especially should be soundly instructed in matters concerning marriage and parenthood. The attitude adopted by the several religious bodies is defined, and the arguments for and against the use of contraceptives are set out, the views given being in correspondence with different types of mind. A world that has accepted the use of chloroform to lighten the pains of childbirth will not find any sure footing on the different ledges occupied by the several opponents of "unnatural" contraceptive methods. But a line must be drawn somewhere; and in view of the precipice at our very feet, there are many reasons of expediency, both moral and material, in definitely banning all such methods, at least as an ideal, and proclaiming sexual self control in marriage, as before it, to be the highest virtue. We should the more be inclined to favour this view, looking on contraceptive methods like the use of dangerous drugs, could exemptions be allowed for adequate reasons by those competent to judge. But the report fails to consider how far this practice actually holds good in the present day, with the consulting-room as the unofficial tribunal. And a better judge than the family doctor, when guided by the general moral principle required, can hardly be devised. The medical student is passed into the outer world with only haphazard guidance as to the advice he should give on these questions of vital importance, both to individuals and to Church and State, but there are no recognised tenets in which to instruct him.

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[1] The Declining Birth rate: its Causes and Effects. Chapman and Hall. 10s. 6d. net.

On the economic and social questions involved little is added to the first report. But it is stated that "recent legislation has effectually destroyed the child of the poor as an economic asset"; and the experience of the employment of women under the Ministry of Munitions, leading to graduation of work during pregnancy, is of practical value. The arguments for and against the endowment of motherhood are set out and left for further inquiry, with suggestions for the special consideration of cases analogous in civil life to the wives and widows of sailors and soldiers who have received help in motherhood during the war. The case of the unmarried mother is discussed in detail. Figures are given showing that the rate of illegitimate births to unmarried and widowed mothers between 15 and 45 sank from 14·4 in the years 1875–80, to 9·2 in 1896–1900, and 7·0 in 1916; but rose to 7·4 and 8·2 in the two following years. The Commission relates the causes—the war, the marriage-law, economic factors and environment; and it finds that parents are greatly to blame. But it devotes chief attention to the causes and remedies of results, especially in the reduction of maternal and infant mortality. The largest proportion of illegitimate children are the result of temporary unmarried unions: (*a*) "from sheer casualness"; (*b*) from principle; (*c*) from one or other partner being already married; (*d*) from reasons which result in subsequent marriage. It is among the class of illegitimates, whose fathers take no responsibility for them, that we find the undue rate of illegitimate mortality and it is far worse in this class than has been realised. Finally come the children of feeble-minded girls and border-line cases. The ante-natal and infantile deaths per thousand births in 1917 are given as 246 in wedlock and 507 out of it. The necessity for action is clear. The law, in its defence of marriage and of national existence, has hitherto treated the unmarried mother as an outcast, has penalised the bastard through the mother and allowed the father to escape almost scot-free. The changes suggested are those in the Bastardy Bill, which has now passed its second reading in the House of Commons, with further suggestions for the guidance of boys and girls, and for the institution of hostels and a bureau of guardianship.

The remaining sections of the report will be more useful to the general public than to medical readers, who may, however, be glad to have a handy review of facts and figures in connexion with infant mortality—ante-, intra-, and neo-natal, as it is now subdivided—and with the dangers of childbirth, with rather disproportionate accounts of the latest work on accessory food factors and of the useful experience of milk-farming at the Harper-Adams Agricultural College for the elimination of tubercle from milk, pointing in favour of the Milk Bill now before Parliament. On the subject of venereal disease the most alarming figures are given to show the danger of the "amateur prostitute" as responsible for two-thirds of the cases in certain military hospitals. The Commission favour a pronouncement by the Ministry of Health as to the advantages of chastity, and the duty of immediate disinfection for those who expose themselves to possible infection. The majority oppose the official use of packet prophylaxis in civil life as "neither desirable nor practicable." Compulsory notification and treatment of venereal disease, on the experience of the Dominions and of 40 out of 48 of the United States, should in their opinion have a trial; the questions of health certificates on marriage and of confidential certification of causes of death should now be reconsidered by the Government. On the subject of alcohol the Commission favours continued regulation of the liquor traffic on moderate lines; while similar counsels of moderation prevail with regard to reform of the divorce laws. A final section urges the development and education of young citizens for worthy parenthood, and points to the need of further inquiry into the physio-, psycho-, and sociological problems involved.

The book will be read with a feeling of satisfaction that the issues are cleared, but of profound anxiety as to the result of a cosmic struggle. Hope lies in the sound common sense of the British public, guided by the sound advice of the medical profession.

F. E. F.

DAS HUNGERÖDEM.

Eine klinische und ernährungs-physiologische Studie. By Dr. C. MAASE and Priv. Doz. Dr. H. ZONDEK. Leipzig: Georg Thieme. 1920. Pp. 137.

FAMINE dropsy, which during the war was temporarily renamed war œdema and hunger œdema, is a disease that fortunately undergoes long periods of eclipse. Then it is wholly forgotten, and hence its literature is scattered and difficult to trace out. Such a book as Maase and Zondek have compiled is on that account of notable value. They have gathered into a single, small, and readable volume a very complete store of information upon one of the most interesting examples of a food-deficiency disease. The clinical description of famine dropsy is clear and good. The accounts of the state of the blood, urine, and digestive functions are exhaustive, and include almost everything that has been written on this aspect of the disease. The researches into metabolism include some most painstaking work in a branch in which the authors themselves have been pioneers. Maase and Zondek are not mere compilers; their contributions to the study of metabolism in famine dropsy have helped greatly in clearing some obscurities away. Even though elaborate investigation only proves the absence of striking abnormalities in metabolism, the investigation is no less valuable and necessary. In brief, Maase and Zondek give the following account of famine dropsy:—

> It is a form of dropsy which is produced by prolonged underfeeding upon a diet which is insufficient qualitatively and especially deficient in calories. Four cardinal symptoms characterise the disease—namely, œdema, polyuria, bradycardia, and asthenia. It is further distinguished by the remarkable absence of certain signs and symptoms—albuminuria, cyanosis, dyspnœa, and cardiac dilatation; also by the absence of the nerve changes seen in beri-beri, the skin changes of pellagra, and the spongy gums and tendency to bleeding which denote scurvy. The changes in the urine scarcely imply any abnormality in metabolic or renal function. There is a marked polyuria, which varies with an equally pronounced polydipsia. Chlorides are increased in the urine, and apparently depend upon an increased intake. Urea-nitrogen is low, and agrees with the low protein value of the diet. Ammonia-nitrogen and kreatin are increased, as in all forms of starvation where the tissue-protein is being disintegrated. In the blood there is hydræmia and hypo-albuminosis, an increase in kreatin and ammonia-nitrogen, and a great decrease in lipoids. As a rule, the degree of oligo-cythæmia is moderate (3 to 5 millions), the colour index is normal, and leucopenia is present.

To this point the authors bring us, and up to this point their book is a reliable guide. But the later and more illuminating researches which have been carried on in England and in the United States have either been too recently published or have been inaccessible to them. The subsequent chapters in our knowledge of famine dropsy must be looked for in the work of Harden and Zilva, or McCarrison in this country, and of Kohman, Denton, and Maver in the United States, not omitting that of Hindhede in Denmark, both prior to and since the war. In the history of the study of famine dropsy Maase and Zondek are unaware of the important contributions made during the Indian famine of 1877–78 by Cornish and by Porter, contributions which form the starting-point of the modern conception of the disease. Although we point out these limitations in the book under review, we give it our ungrudging praise for its completeness and accuracy as well as for brevity and clearness of style. Its bibliographies are good and the references correct.

SIGHT TESTING MADE EASY

Fourth edition By W WRIGHT HARDWICKE M D St And , M R C P , L R C S Edin London J and A Churchill 1920 Pp 80 5s net

THE author of this little book tells us that one of its objects is to enable the busy practitioner to test the sight of a patient and prescribe the necessary correcting glasses in the shortest possible space of time This aim it may be said to have accomplished We should have greater confidence in the result of the practitioner s prescription, however, if during his student days he had been given the opportunity of acquiring so much knowledge of the objective methods of examining the eye and its refraction as would render such a book as this superfluous It is, we believe, the practice of many country practitioners to refer their refraction cases to opticians The man who, not having any previous knowledge of the subject, puts his trust entirely in this book is not likely to do much better for his patients The advice given on page 16, to refer cases of heterophoria to an ophthalmic specialist, should not be weakened by laying down rules for the treatment of that condition (on pages 64–65) which are wholly inadequate But in the main the book is clear, and the student commencing his work in the ophthalmic outpatient department may be recommended to read it

ANTITUBERCULOSIS RECONSTRUCTION

By D P H , R C P S I Dublin and London London Maunsell and Co , Ltd 1919 Pp 38 6*d*

THIS pamphlet is as full of meat as it is concise it has obviously been written by a person with many years experience of all sides of the tuberculosis service He evidently finds it a service with many shady sides to it, with many abuses and much mismanagement In a chapter on sanatorium management he inveighs against the system of honorary visiting physicians, who reduce the status of the resident medical officer to little better than that of a house physician All the sanatoriums that have made a mark in the world were blessed, in his opinion, by having resident medical officers who were masters in their own house With regard to appointments, he quotes Télemaque "Talent? Merit? Services? Bah, belong to a coterie! In short, the system of management of English public sanatoriums is, he argues, fundamentally wrong The author does not confine himself to destructive criticism, and many of his recommendations are sound

The pamphlet is well worth reading and re reading by all in authority who are anxious to combat "the mismanagement, the petty jobbery, the petty oppression, the insular backwardness, all hidden with the pertinacity of a war time censor, hushed up by the familiar British conspiracy of silence " For there is truth behind the writer s vigorous protests

RAMBLING RECOLLECTIONS

An Autobiography By A D ROCKWELL, M D New York Paul B Hoeber 1920 Pp 350 $4

Dr A D Rockwell is perhaps best known to British medical men as the Rockwell of "Beard and Rockwell," which was for many years the premier treatise in the English language upon electro therapeutics, a position which it maintained until superseded by W E Steavenson's work on the same subject, which in its turn was amplified and eventually entirely rewritten by Lewis Jones

Dr Rockwell was born in 1840 at New Canaan Conn , so that he has well over 70 years of remembrance behind him In fact, he tells us that his earliest recollection is of walking about the house singing "Four years old next May ' His mother s maiden name was Comstock, a name well known to our fathers in connexion with Comstock's Natural Philosophy, for many years a deservedly popular treatise on both sides of the Atlantic Dr Rockwell gives us a charming picture of his childhood, a life which seems nowadays very far away The family physician was Dr Noyes, and Dr Rockwell describes how his grandfather paid the said Dr Noyes 25 dollars a year whether he was sick or well He used to arrive on horseback, with saddle bags containing a selection of nauseous drugs which were administered quite undisguised Blue pill was carried in the mass and converted into pills between Dr Noyes s finger and thumb as occasion required When Rockwell attained the age of 15 he obtained a situation as boy of all work to a New York firm of jewellers, but at the age of 17 he was sent to Kenyon College When 21 he began to learn medicine, studying at Ann Arbor and New York, graduating in 1864, and in the same year he received his commission as assistant surgeon in the Sixth Ohio Volunteer Cavalry seeing a good deal of service with Sheridan Being discharged in August, 1865, he began civilian practice and worked in conjunction with Dr Beard, whom he had previously known in New York These two men became the practical founders of electro therapeutics in the States, and very largely influenced the study in Great Britain They remained in partnership for eight years, when they separated, though always maintaining their friendship Beard could not have been an easy person with whom to get on, and was obviously a very original character, in whom a strong sense of humour made other qualities more acceptable

Dr Rockwell has an interesting chapter upon electrical executions, in the establishment of which method his evidence was a leading factor The rest of the book is chiefly made up of personal recollections of various characters, notable and otherwise, which are all, however, good reading As a record of a busy, useful life, and a picture of a fashion of things now long passed away, the book can be warmly commended

MUSINGS OF AN IDLE MAN

By R H FIRTH, K B E , C B , Colonel, and late a D D M S with the British Army in France London John Bale, Sons, and Danielsson 1919 Pp 360 7s 6*d*

THIS is a pleasant little book of musings upon a multiplicity of subjects, and is just the volume for anyone to keep by his bedside in case he be wakeful Not that we wish to suggest by this remark that reading the book will bring about ' an exposition to sleep but rather that the essays, being short and written in a pleasant style, need no particular mental effort for their due appreciation The author travels over a wide field—to use his own words, "the fields most frequented have been those of ethics, evolution, idiosyncrasies, manners, morals, mysticism, nature, philosophy, sociology, and even spiritualism ' He is evidently widely read, and has not forgotten his classics His views on his various subjects are always interesting, though we may not always agree with him For instance, when he says, on p 115, that the Romans "in exact proportion to their study of Greek paralysed some of the finest powers of their own Latin' the statement is certainly not true in the case of Cicero But we quite agree with his further remark that "some of the grandest, tenderest, and most sublime passages in our literature are made up almost exclusively of short Saxon words ' The Authorised Version and Shakespeare bear witness to this—e g , "Come from the four winds O breath, and breathe upon these slain that they may live ', or again, "Thy pomp is brought down to the grave, and the noise of thy viols, the worm is spread under thee and the worms cover thee ' Or take this from Macbeth —

> Thou sure and firmset earth
> Hear not my steps which way they walk for fear
> The very stones prate of my whereabout
> And take the very horror from the time
> Which now suits with it

JOURNALS

The Journal of Physiology Edited by J N LANGLEY Sc D LL D F R S Vol LIII No 6 pp 367–478 Cambridge University Press 1920 9s —Studies on the Capillarimotor Mechanism—I the Reaction of Stimuli and the Innervation of the Blood vessels of the Tongue of the Frog by August Krogh Certain experiments seem to point to a reconsideration of current conceptions concerning vaso-motor regulation and the mechanism of vaso motor changes The prevalent idea identifies vaso-motor changes with arterio motor—i e that the vaso motor mechanisms control the smaller arteries and arterioles and therefore largely regulate the capillary circulation so that the state of filling of the capillaries follows as a physical consequence from the general blood pressure and the state of contraction of the arteries and arterioles. Recent experiments show that the calibre of capillaries is not simply a function of the pressure of the blood coming from the arterioles, but that the capillaries have independent reaction, and may dilate and contract individually and independently of the blood pressure within their walls. Histamine and minimal doses of adrenalin have a dilator effect on capillaries which is independent of the nerve-supply, while the effect of these substances upon arteries is that of constriction. The author studied microscopically the reactions of the blood-vessels of the frog's tongue to mechanical, chemical, thermal, and electrical stimulation, and as the result of his careful experiments, assumes that the nerve-endings in the walls of capillaries and arterioles have a double function, being at the same time sensory and dilatory—i.e., inhibitory with regard to the vascular tone. For this view several reasons are assigned. It would appear that capillary tonus is only to a very slight extent—if at all—of a nervous nature. Experiments indicate that arterial pressure is unable to dilate capillaries to any appreciable extent or open them up when they are tonically contracted, while the venous pressure may be sufficient to fill them when relaxed in response to weak mechanical or chemical stimulation locally applied. The state of filling of the capillary vessels does not depend, therefore, upon the arterial blood pressure, but upon the degree of tonus or relaxation of the capillary wall. Local mechanical—by fine hairs—or thermal stimulation, or the application of minute drops of weak acid, cocaine, or adrenalin, may produce dilatation both of capillaries and arteries. With a strong stimulus the effects spread to an area greater than that stimulated. Urethane causes dilation of the capillaries without affecting arteries. The reactions of the vessels to local stimulation is abolished by cocaine. They are not affected by simple section of the nerves, but disappear when sufficient time is allowed for the nerves to degenerate. Probably the reactions are due to local axon reflexes of the antidromal type. Electrical stimulation of the lingual nerves was without effect on capillaries, but strong mechanical stimulation may cause very considerable dilatation of capillaries and arteries in the area innervated. Capillary tonus is not principally of nervous origin, but depends upon the supply of blood. The substance in the blood responsible for this action is unknown, but it is not oxygen.

The Changes in Respiration at the Transition from Work to Rest, by A. Krogh and J. Lindhard. The changes were studied by the use of a bicycle ergometer and a special respiratory chamber. The changes due to muscular work gradually return to the resting level when work is stopped. The oxygen deficit caused by the lagging behind of the oxygen absorption in the first minutes of work is not compensated during work, but may be determined quantitatively when work has ceased. When heavy work has ceased the respiratory quotient rises, often far above unity, and the increase is continued during about one minute and a half. This rise may be due to washing out of CO_2 caused by the fixed acids in the blood.

The Flow of Oxygen through the Pulmonary Epithelium, by J. Barcroft, A. Cooke, H. Hartridge, T. R. Parsons, and W. Parsons. The rôle played by the pulmonary epithelium in respiration has been a matter of controversy for over 30 years, one set of observers holding the view (1) that the oxygen passed by diffusion, the other (2) that it was transferred by a secretory process depending on the expenditure of energy on this part of the lung cell. The authors' object was to test the theory of oxygen secretion. If, as is alleged by Haldane and Douglas, the oxygen pressure in the alveolar air is, under conditions of oxygen-want—anoxæmia—lower than that in the arterial blood, the secretory theory may be regarded as proven. If, on the other hand, the pressure of oxygen on the two sides of the pulmonary epithelium are approximately equal, the question arises: Will diffusion account for the quantity of oxygen which experiment shows must pass into the blood in a given time? The conditions of the experiment were rather arduous and demanded prolonged self-sacrifice for science sake, for the subject of the experiment lived in a glass chamber for six days exposed to anoxæmic conditions, the anoxæmia being produced by a reduction of the partial pressure of oxygen to 84 mm. by increasing the percentage of nitrogen. On the evening of the sixth day a comparison was made between (*a*) the amount of oxygen in the blood as taken directly from the radial artery without exposure to air, and (*b*) the amount of oxygen in the same blood after it has been shaken with alveolar air of the subject. The comparison, as made with the subject at rest, was repeated whilst he was taking exercise, the quantity of exercise being measured. Had the arterial blood as withdrawn directly from the artery contained more oxygen than appeared in the same blood when shaken up at body temperature proof would have existed of oxygen secretion. The duration, maintenance, and degree of anoxæmia are all carefully described, as well as the methods of determining the oxygen in the blood, and the analyses of the final stage of the experiment, the operation on the radial artery, the collection of the blood, alveolar air, expired air, and the results obtained. (1) Under a condition of anoxæmia caused by living for six days in an atmosphere in which the partial pressure of oxygen fell to 84 mm., analyses were made of the alveolar air and arterial blood in man. The arterial blood *in vivo* contained less oxygen both during rest and work than did samples of the same blood exposed to alveolar air *in vitro*, at body temperature. (2) During work the quotient of the oxygen consumption and difference in oxygen pressure yielded a diffusion constant of about 100. (3) There was no self-reduction of the blood sufficient to invalidate the determination of the percentage saturation of the blood withdrawn directly from the radial artery.

The Cortical Paths for Mastication and Deglutition, by F. R. Miller. It has long been known that movements of mastication may be elicited in the rabbit by stimulation of the cerebral cortex. These movements are bilateral. This masticatory rhythm and deglutition can be elicited from the infracortical tracts as far posteriorly as the corpora mammillaria. Beyond this level both reactions cease to be evocable, because the fibres concerned have passed to their respective motor nuclei as "aberrant fibres." The steady jaw closure which replaces rhythmical mastication is caused by escape of current to the mandibular branch at its exit from the skull. There is no deglutition centre in the thalamic region, and a mastication centre there seems improbable. The infra-orbital tract for mastication and deglutition passes through the lower part of the internal capsule at the level of the posterior part of the caudate nucleus to the medial part of the pes at the level of the corpora mammillaria.

The Colloid-free Filtrate of Serum, by A. R. Cushny. When serum is filtered through a collodion membrane which retains the colloids, most of the other constituents, such as salts, sugar, urea, occur in the filtrate in the same proportion as in the original serum. The only exceptions to this rule are calcium and, possibly, magnesium, which pass through the filter in a lower concentration than exists in the serum. The non-colloid constituents other than calcium and magnesium are therefore in simple solution in the serum, while part of the Ca and Mg is probably in some form of combination with the proteins. Possibly the combined form in which Ca exists in the serum may account for its being in part excreted by the intestinal epithelium. No such combination as "ion-proteid" exists in the blood plasma, and the view that the proteins expel the CO_2 from bicarbonates is incompatible with the absence of such compounds. If filtration occurs in the kidney glomerulus the filtrate must be substantially identical with that obtained from serum by means of a collodion membrane.

Shorter communications include Action of Guanidin on the Heart of the Frog, by D. Burns and A. Watson. Guanidin salts (0·25–1·7 per cent.) produce primary cardiac acceleration, followed by prolonged and marked retardation of the beats, due to (*a*) vago-cardiac nerves and (*b*) pronounced vaso-constriction, with reflex inhibition. By the use of atropine and nicotine the point of action of guanidin was found to be a nicotine-like action on the sympathetic neurones.—The Effect of Injection of Guanidin on the Creatin-content of Muscle, by George M. Wishart. When administered intravenously or subcutaneously in cat and frog an inorganic salt increases the creatin-content of the muscles, which varies with the dose administered.—Non-medullated Fibres in the Spinal Ganglia, by Margaret E. Wilson. As it had been suggested that the non-medullated nerve-fibres described by S. W. Ranson were neuroglia fibres, the author using specific neuroglia stains finds no neuroglia elements in the ganglia.—The Determination of the Circulation-rate in Man from the Arterial and Venous CO_2 Tension and CO_2 Output, by G. Liljestrand and J. Lindhard, is somewhat technical, as is Pitch Discrimination in the Dog, by G. V. Anrep. In part this is an epicritic on an article in the Behavior Monographs by H. M. Johnson ("Audition and Habit Formation in the Dog"), criticising the experiments by the Pavlov Petrograd School on the auditory capacity of dogs. The Pavlov School maintains that the dog possesses fine auditory differential capacity as well as highly developed pitch discrimination. The experiments of Anrep deal largely with what Pavlov has called "conditioned reflexes" as applied to the salivary glands.

The Prescriber. Edinburgh: Thos. Stephenson. 2*s.* 6*d.*—The June number of this journal is devoted mainly to colloid therapy, and a very interesting series of articles appears, setting forth the place colloids are rapidly taking in general practice and their use also as antiseptics. The bibliographic summary containing references to the use of colloidal metals and non-metals in therapeutics will be found particularly valuable in bringing forward all that has been done on the subject, and the directions in which colloids are being used with the prospect of successful treatment.

THE LANCET.

LONDON: SATURDAY, JUNE 26, 1920.

An Emergency Grant to the London Hospitals.

AT a special meeting of the General Council of King Edward's Hospital Fund for London, held at St. James's Palace on Tuesday last, it was unanimously decided to make an emergency distribution of £250,000 out of the available general funds, in order to assist the London hospitals to meet their most pressing needs. The terms of the resolution were cordially approved by the KING, the patron of the Fund, to whom they were submitted, and who in a message of support added his desire that all societies and public bodies, on whom the obligation to assist the London hospitals in part rests, as well as all private individuals, should join in the effort to meet the emergency, "and thus ensure the continuance of the voluntary system." The Council's decision to make the large and immediate grant was unanimous after hearing the sound arguments of Lord DONOUGHMORE, who presided; but the Right Hon. JAMES WILLIAM LOWTHER, the Speaker of the House of Commons, and Lord BURNHAM, in pointing out that the working people of London did not seem to be aware of their responsibilities towards the institutions by which they benefited so largely, expressed a general view.

The Problems of Medical Education.

THE Report of the Education Committee of the General Medical Council upon medical education, with particular reference to the preventive aspects, led to the interesting debate by the Council in Committee which we published last week, and to the important declaration, contained in an ensuing recommendation, which was adopted by the Council, "that the questions which have been raised involve the revision of the whole curriculum in medicine." There is reason to suppose that the proceedings in the Sections of Medical Education and of Medical Sociology at the meeting of the British Medical Association, which commenced session at Cambridge to-day, will confirm the sense of this recommendation; and in this way the feeling that "something must be done," so general among all teachers for the past 30 years, may be replaced by the fact of something being done, and done quickly.

But he will not be so much a sanguine man as a shortsighted one who is expecting that any revision of the medical curriculum will settle the problems of medical education. Indeed, we may congratulate ourselves that, medicine being a science of constant progression and an art of undefinable inspiration and technique, new problems in the training of those who are to live by its practice will be ever arising. Medical education cannot be conducted on the system which kept the Chinese, despite their industry and acuteness, in worse than mediæval bonds until 30 or 40 years ago. An infinite elaboration of a settled pattern leads to sterility. Medical education must move with the scientific times, and as medicine calls to its assistance with greater intimacy more of the allied sciences, so will questions be more frequently raised as to how much of this or how little of that is it necessary that the medical student should know, if he is to fulfil his one duty, in any of its various subdivisions, of being the medical adviser of the people. Each time that new questions, over this large reference, multiply in number until teachers and taught are embarrassed, inspection will show that the medical curriculum requires revision; and certainly such a time has now arrived. Indeed, it was overdue before the war prevented any measures of remedy. That nothing was done during the war is a reproach which our educational authorities can bear, not only because it is an unreasonable one, but because they can fairly say that the factors concerned have been so changed that reforms put into action before the great upheaval would be found in practice unsatisfactory to meet the existing situation. But it is not a matter for congratulation that we can look back two generations and find that many changes which are being advocated in the curriculum were advocated at that distant period, even though they form only a part of the work which has now to be done. To-day, however, the General Medical Council, by consulting the various bodies with the right to grant degrees and diplomas, has received a mandate to act promptly in relief of the difficulties experienced at all medical schools. Since 30 out of 38 of these bodies replied to its questionnaire the Education Committee of the Council has been able to report in the light of broad and more or less concordant views. The Council may be said to have received in this way authority to proceed and certain general advice for its guidance.

While there are several suggestions made to the Committee for shortening the curriculum there are none for lengthening it. While there is an obvious feeling that an advantage would be gained were the minimum age of entrance to the medical schools raised to 18, there is no definite instruction as to the standard which should be reached at any entrance examination. The feeling is general that the last two years of school life could be largely devoted to chemistry and physics, and a pass certificate in these subjects accepted at the medical schools. This would greatly lighten the curriculum at one stroke, but such pass certificates must be within the reach of all medical students alike, and there are parts of the United Kingdom where the necessary instruction could not be received. We see that the old difficulties attend the very first two steps. While admitting that the science of medicine has increased in scope, and that therefore there is more for the student to learn, we are confronted with the fact that nobody thinks more time ought to be compulsorily taken in which to learn it—a view which we heartily endorse. Therefore overlapping must be abolished, redundancy pruned away, and, if possible, material, in the shape of students, must be received for the professional subjects more advanced in growth, if it is to reach a standardised height in a limited period. Waste of time may be avoided by ensuring that neither the ancillary subjects nor the directly professional subjects of anatomy and physiology are taught in compartments. A great improvement in the work of medical students and in their ability to pass sensible examinations, because they really know their task, will be ensured when the study of anatomy, physiology, and physics accompanies the student through the study of pathology, the teachers forming the connecting line. The full Report of the Education Committee is by this time in the hands of all the authorities of medical education; for our part we wish it was available for all practitioners, and for this reason mainly, that it *defines* what is indicated by "preventive medicine," the subject matter of the whole debate. Hygiene and public health are not in question. What is meant is the avoiding, the cutting short, the aborting of disease by the early recognition of its presence. It would indeed raise the standard of medical education if the student could be taught to detect incipient maladies, but such instruction must surely follow on familiarity with the grosser phenomena of established disease.

The Tropical Disease Prevention Committee.

THE well-worn proverb concerning honesty and policy has been criticised by many as basing a high aim on the low grounds of self-interest, and the fifth Mosaic Commandment is open to the same objection. In a work-a-day world both aphorisms find acceptance, and to all States and Governments, as well as to those responsible for large commercial enterprises, we would point out that those who contribute generously to the endowment of pure science will be rewarded by practical results of such advantage to themselves that their original gifts may truly be spoken of as "good investments." And in no sphere of man's work is this more true than in the study of the nature and causation of tropical disease. When once the nature and causation of the group of diseases comprehensively spoken of as "tropical" are known —but not until then—the true means of preventing, or, at least, of controlling them, comes into sight. While much has already been done in the patient investigation of tropical diseases, it would be idle to deny that we are still ignorant of the exact causes and mode of spread of many of them, or that there is still a vast field of investigation open before the problem of their successful control can hope to be solved. Great territories, not a few of them forming part of the British Empire, are still ravaged by leprosy, yaws, beri-beri, pellagra, plague, blackwater fever, bilharziasis, hookworm disease, filariasis, and other loathsome diseases; and in many cases the loss of man-power entailed by their prevalence is so great as to form a serious barrier to the progress of the State or the success of great commercial undertakings therein.

Any fresh attempt, therefore, to conquer the unknown in respect of these diseases must be welcomed. The Tropical Disease Prevention Committee has been formed with this as one of its objects, and Dr. E. T. JENSEN (71, Harley-street, London, W. 1) is acting as honorary secretary. It is composed, we are glad to see, not only of many distinguished specialists in the study of tropical disease and of representatives of the allied sciences of botany, zoology, geology, agriculture, and veterinary science, but also of leading administrators and pro-consuls in tropical lands and of the heads of great commercial houses interested in those countries. It has, moreover, an international character, and in the striking list of members appear the names of well-known authorities of French, Italian, Dutch, American, and other nationalities. The objects of the Committee are briefly explained in its subtitle, "a Committee to Encourage Imperial and International Research and the Eradication of Preventable Disease in Tropical Countries," and are more fully set forth in a pamphlet issued by the Committee. It is there pointed out that "there is no organisation, like the Rockefeller Foundation, in this country whose aim is solely or even principally that of the eradication of tropical diseases." The fact that the knowledge already gained by long experience in the fight against such diseases has not been generally applied, nor always in a reasonable and efficient way, is noted, and the need for immediate action is dwelt upon. The Committee rightly aims high. It is hoped to raise immediately a sum of £100,000, and it is proposed to begin work by undertaking a thorough medical survey of the Lesser Antilles. The advantages offered by small islands, as compared with vast continental areas, for such a survey are obvious. But the work is not to be confined to purely scientific research; it is hoped that the Committee will be able to apply, with the coöperation of local authorities, practical preventive measures, and for this purpose the Island of Barbados is suggested as a suitable field for an active campaign against ankylostomiasis, filariasis, pellagra, and leprosy. It is expected that the survey of the Lesser Antilles, which was first suggested by Dr. L. W. SAMBON, will occupy about three years, and that it will cost some £30,000. When that is completed other investigations will be carried out elsewhere, and it is hoped that the Committee and its work will be permanent and continuous. This must, of course, depend upon the support it receives from the public, and more especially from those who may be expected to benefit from the result of its labours.

Striking passages in the pamphlet prove the truly appalling economic loss in many tropical lands from preventable disease, and the contrast between vast engineering and labour enterprises aided by a rationally applied hygiene and such enterprises not so aided, is rightly and none too strongly emphasised. For example:—

> "During the construction of the Panama Canal from 1881 to 1889, the French lost by death 22,189 employees, at the rate of 240 per 1000. The death-rate from yellow fever varied between 7·3 and 20·6 per annum, and from malaria between 12·5 and 20·5. In the hope that African negroes might survive the climate, 1000 were imported; all died within six months. The same fate befell 1000 Chinese labourers."

The Americans took over the work in 1904; yellow fever disappeared in 1906, and the total mortality from all causes fell from the appalling figures just quoted to 8·1 per 1000 (in 1918). And again:—

> "In North Borneo, in seven hygienically managed estates, the average death-rate per 1000 was 10; in two less carefully managed, the death-rate was 43 and 72 respectively."

It will be among the objects of the Committee, we gather, to render impossible in future such ruthless slaughter of innocent individuals, to make universally known the lessons already learnt as to the methods of preventing many preventable diseases, and to widen the field of applied hygiene in tropical countries by research into the natural history of other diseases. These aims are as truly humanitarian as scientific, and as commercially promising—to descend once more to the levels of self-interest—as either. They cannot, we think, fail to appeal, and we gladly and warmly commend them, to the support of administrators in all tropical and subtropical countries, of the leaders of commerce in regions where disease is still a formidable obstacle to the full development of trade and labour, and, indeed, of all who are in any way interested in the future welfare of the earth's warmer zones.

The Rockefeller Benefaction.

The gift of £1,205,000 which the Board of Trustees of the Rockefeller Foundation has made to University College Hospital and Medical School and to University College, of which we gave the details in our columns last week, is the most magnificent endowment for education which this country has ever received. The gift is made primarily for the promotion of medical education and research, and the fact that it has been made to two institutions in London may be taken as a proof of the high place which London holds in the minds of the donors as a centre of medical training. The gift is not intended to relieve our charity for the sick poor of London. The Trustees, rightly in our opinion, conceive that this is not their business; they have never hitherto helped any medical charity in the States, but have limited their assistance, which has been on the most generous scale in that country, to the needs of medical schools and other educational establishments. The money is given for certain schemes of development on the part of University College Hospital and Medical School and University College which have received the approbation of the Rockefeller Foundation. These schemes include the addition of some 180 beds to the hospital, mainly for the purposes of the medical and surgical units which have already been established there, for the provision of an annexe to the hospital to house the new obstetric unit of 60 beds, and for the building and equipment of a new Institute of Anatomy at University College.

The unit system of clinical teaching, which has received strong support from the Foundation in the United States, was recommended for adoption in this country in the report issued in 1913 by the Royal Commission on University Education in London. The war prevented any action being taken, but at the end of last year, on the initiative of the authorities of the Board of Education, and largely through the good services of Sir George Newman, certain of the London medical schools were given the opportunity of setting up clinical units, the Board promising to pay three-quarters of the total approved expenditure in any one year. This offer was taken advantage of by several of the London schools, and units have now been established at University College Hospital and at four of the other medical schools—namely, those attached to St. Bartholomew's, The London, St. Thomas's, and St. Mary's. In a memorandum recently issued by the Universities Grants Committee, the body which now controls the grants made by the Treasury for the maintenance of the units, the essentials of this system are stated to consist of three units, which should be interrelated and inseparable, dealing with medicine, surgery, and obstetrics respectively. In each of these units there should be a director who would devote the greater part of his time to teaching, treatment, and research, competent to teach, of sound scientific training and with scientific imagination; with an adequate whole-time or part-time staff, with the control of beds and a proper out-patient department, with ample laboratory accommodation and post-mortem service and with adequate scientific equipment for clinical teaching. The units should work along with and supplement the ordinary ward services in which practical teaching will be carried on as before, but the clinical unit will deal more especially with scientific instruction and research. It was because they strongly approved of this system, and because they saw that it might fail for want of sufficient financial aid and adequate clinical facilities, that the representatives of the Rockefeller Foundation recommended their Board of Trustees to make this magnificent donation to one of the London hospitals.

The object of the gift is, first, funds for a building and equipment programme, to include additions to the hospital, so that the two units of medicine and surgery already established may have fuller clinical facilities, and that a third obstetric unit necessary to complete the whole scheme may be provided with a building and additions to the research laboratories in the schools; and, secondly, an endowment fund primarily for the needs of the units as regards their teaching and research. Until such time as the monies can be raised from other sources, for the maintenance of 120 of the new beds which are to be allocated for the use of the medical and surgical units the Rockefeller benefaction will be available. None of the money, however, is to be used for the maintenance of the new 60 beds in the obstetric unit, and it is for this reason and because of the larger maintenance charges which the increase in the size of the hospital and medical school will entail that the authorities of the hospital will be compelled, when the buildings are ready for occupation, to find a sum of approximately £20,000 at present value to meet this increased expenditure. The remainder of the gift is given to University College to build and equip a new Institute of Anatomy in which the necessary facilities for anatomical teaching and research will be provided in accordance with the scientific requirements of the time and for additions to the departments of physiology and pharmacology. The Trustees of the Foundation fully realise that their gift, large as it is, does not provide the whole of the monies needed for the complete fulfilment of the schemes of development laid before them by the authorities of the hospital and medical school, on which they have set the mark of their approval in so striking a manner. They trust, however, that this offering on their part may serve as an example to those in this country who have large fortunes at their disposal. And as they think that England should support its own medical charities, they intend that the money given by them shall be used for the advancement of medical education and research, and so, ultimately, for the welfare of mankind throughout the world.

In expressing our deep gratitude that this country should have received such a magnificent offering of goodwill from our brethren across the Atlantic, we may express the hope that the recipients will prove worthy of the great trust imposed upon them and will make such use of the opportunities afforded them that the benefits to mankind resulting therefrom may prove equal to the splendid generosity of the donors.

Annotations.

"Ne quid nimis."

INDUSTRIAL FATIGUE RESEARCH BOARD.

"THE good a man does lives after him" might suitably be chosen as a memorial epigram for the Health of Munition Workers Committee, who not only did much during their short life, but sowed many seeds which are only now beginning to grow to a harvest. One of these seeds was research into the workings of the human machine in industry. The growth of this research has never been allowed to stop; on the disbandment of the committee in 1917 it was kept alive by the Welfare and Health Section of the Ministry of Munitions until in 1918, when a body, the Industrial Fatigue Research Board, was set up to develop and extend investigation. The terms of reference to the Board, which is now attached to the Medical Research Council, are: "To consider and investigate the relations of the hours of labour and of other conditions of employment, including methods of work to the production of fatigue, having regard both to industrial efficiency and to the preservation of health among the workers."

We have now before us the first annual report[1] dealing with the work of the Board. From it some idea can be obtained of the difficulties experienced in organising this new field of research; in finding skilled observers to undertake investigations; in obtaining facilities for research; in fact, in constructing a machine for doing work which has never been done before with no precedent to follow. Other countries are watching to note success or failure, while labour on the one side and capital on the other have had at each stage to be conciliated and informed as to the value and importance of the work. In these circumstances the following statement is very satisfactory:—

> "Owing to the small amount of research on industrial fatigue which had been carried out when the Board was formed, they have been compelled to start their inquiries practically *ab initio*, with an investigating staff to whom, with a few exceptions, all the problems were new. In addition, the nature of the experiments generally involve observations over a long period, so that final results cannot be expected for many months after an investigation has begun. The initial difficulties, however, are now being quickly overcome, and although the work of the Board is still largely tentative, and must necessarily continue so for a long time, there is every ground for anticipating that progress in the future will be at a much more rapid rate than in the past."

The report shows the amount of spade-work which has been done; it is necessary work, but it does not appeal to the outsider, who looks for immediate results. Nevertheless, several useful reports have already been published, and there are clear indications that the output is likely to be considerably increased in the near future. Even as we write the first of a series of reports dealing with the textile industry has just been issued. Four investigations have been completed and reported upon, dealing with tinplate manufacture, shell-making, iron-founding, and industrial accidents. Nine other investigations, all of wide scope, are in progress, dealing with such industries as the manufacture of iron and steel, boots and shoes, the cotton industry, the silk trade, laundry work, vocational selection, and special statistical research. Six other investigations are approved for action as soon as the staffs are available for the purpose. The method of procedure followed is of some interest. Each investigation is entrusted to a special committee, of which there are 11 in existence, composed of not merely members of the Board, but also industrial experts, together with representatives of employers and workmen in the industry concerned. By this means full technical knowledge is obtained and also coöperation among masters and men. A staff of skilled investigators, visiting factories and carrying out laboratory research work, acts under the direction and supervision of each committee. As the work of the Board becomes more widely known applications for their services are likely to increase rapidly. Probably while foundations have been under construction advantage has been gained by lack of publicity. That day is nearly over, and the time is near when the value of the work to the health and contentment of operatives and to increased production for the community will call for wide recognition. Possibly practical application of the principles brought to light through the research work of the Board may be undertaken by such a body as the proposed National Institute of Psychology and Physiology applied to commerce and industry, the inception of which we recently drew attention to in these columns. Great Britain in this matter has established a lead, and there is promise of maintaining and increasing this lead. The scope of the work is intimately bound up with the sphere of preventive medicine; in "fatigue" the great James Paget saw the beginnings of disease, and its prevention cannot fail to react favourably on health. The possibility of establishing a theory of health to precede investigations into any theory of disease lies here.

THE DANGERS OF ASCARIASIS.

THOUGH serious complications due to the ascaris lumbricoides have from time to time been recorded, this most prevalent of all animal parasites is not usually regarded as a source of danger. In the *American Journal of the Medical Sciences* Dr. B. C. Crowell shows that the dangers are considerable and are overlooked because the word of the pathologist is seldom heard on the subject. Experience of several years in the necropsy-room at Manilla has led him to this conclusion. In the Philippine Islands as many as 62 per cent. of the population have been found infested, and in some places the percentage is much higher. Large numbers of worms may be present in the intestine, producing masses which cause ileus. Cases are recorded in which as many as 600 worms were passed in one day. Whether the ascaris can perforate the intact intestine is unsettled. Dr. Crowell has seen several cases in which it opened up a repaired wound of the intestine, determining fatal peritonitis. Hence the importance of using vermifuges in ascariasis when abdominal operations of choice are to be performed. Migration into the biliary passages must be more frequent than is indicated by the reports, as it is only in cases of operation or necropsy that the diagnosis is made. Leer has stated that ascarides are the second most frequent cause of hepatic abscesses. These are usually multiple and the pus is very foul. In one case reported by Dr. Crowell there were three large ascarides in the hepatic ducts, the largest of which extended to the surface of the right lobe of the liver. The common duct was distended and occluded by the folded bodies of two full-grown ascarides, and one protruded from the papilla of Vater. There were thrombosis of the splenic vein and acute hæmorrhagic pancreatitis. Migration of the ascaris to the stomach and œsophagus and expulsion by the mouth or nose is frequent. But the parasite may pass into any of the connected canals or cavities—nasal sinuses, lacrymal duct, Eustachian tube, larynx, and trachea. In the larynx it may cause alarming symptoms and even suffocation. Toxic and reflex symptoms, such as fever, nausea, abdominal pain, convulsions, tetany, delusions, symptoms simulating meningitis, may occur in ascariasis. Proof of the connexion is furnished by their disappearance after successful treatment of the infestation. In the horse and pig ascaris Flury found toxic substances (volatile aldehydes of the fatty acids) which cause irritation and necrosis. A nitrogenous substance which after subcutaneous injection in the dog causes death with severe hæmorrhages in the intestine was also found. Dr. Crowell has observed the case of a Filipino, aged 8 years, who was seized by vomiting, followed by pain in the chest and knees. Œdema, jaundice, melæna, hæmorrhage from the gums, and ecchymoses on the face and legs soon developed. The patient became very anæmic and died at the end of six days. The necropsy revealed 150 ascarides in the stomach and intestines, purpura hæmorrhagica with hæmorrhage into the stomach and intestines, and epicardial, pleural, retropleural, and retroperitoneal hæmorrhages. Another source of danger is the larvæ of the ascaris. It has recently been shown by Major F. H. Stewart, I.M.S., and others that on administering the eggs of ascaris suilla to the pig, rat, mouse, or guinea-pig they hatch in the intestine, and the larvæ enter the blood stream, pass through the liver and heart to the lungs, where they migrate from the capillaries into the alveoli, and thence through the bronchi and trachea to the pharynx. During this process pneumonia may be set up. There is reason to believe that similar changes may be produced in man by the ascaris lumbricoides.

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[1] First Annual Report of the Industrial Fatigue Research Board. 1920. H.M. Stationery Office. Pp. 31. 6*d*.

THE MACALISTER TESTIMONIAL FUND

THE date of the presentation of the cheque, arising out of the generous response to the fund organised for the purpose of marking the very exceptional services of Sir John MacAlister to the Royal Society of Medicine during more than 33 years, has been fixed for Wednesday, July 7th, in the Barnes Hall, at 4.30 P.M. The ceremony will be performed by the President, Sir Humphry Rolleston, K.C.B., and will precede the business of the annual meeting, which will be held at 5 P.M. The fund will be finally closed on Saturday, July 3rd. The honorary treasurer is Sir W. Arbuthnot Lane, 21, Cavendish-square, London, W. 1.

FUEL REFORMS IN THE HOME AND FACTORY

THE Public Information Branch of the Ministry of Health has published an interim report on Smoke and Noxious Vapours Abatement. The report sets out much to which we have given publicity for a good many years; we cannot, indeed, tell the story better than by reference to our own columns. We asked in an annotation in THE LANCET of September, 1895, whether the Smoke Nuisance Act was properly enforced. Since asking that question much good work has been done in regard to smoke abatement, and the Coal Smoke Abatement Society, under the ægis of Sir William Richmond and Dr. H. A. Des Vœux, came into being. This has since organised an active movement under the able secretaryship of Dr. J. S. Owens, which culminated in the formation of an Advisory Committee on Atmospheric Pollution to the Meteorological Office. In the early part of 1910 Dr. Des Vœux, the honorary secretary of the Coal Smoke Abatement Society, and Dr. Owens consulted our Laboratory in regard to making some experiments in the direction of estimating the contents of the London atmosphere at regular intervals over a period of a year at various stations in the metropolitan area. A scheme was eventually formulated, and the first series of observations were made on June 13th, 1910, and the report which appeared in THE LANCET of Jan. 6th, 1912, on "The Sootfall of London," attracted considerable attention. In March, 1912, a conference of delegates was held at the International Smoke Abatement Exhibition at the Royal Agricultural Hall, and it was resolved that steps should be taken to secure the general adoption of a standard method for the measurement of atmospheric pollution by smoke and the other products of combustion and dust. A Committee was appointed, our Laboratory Director being one of them, and the methods originally adopted in THE LANCET Laboratory were received with favour by the Committee with subsequent modifications. The Committee with commendable activity got into a practical stride and was able to secure 28 observation stations throughout the country, with the result that on Oct. 24th, 1914, we published a first series of records received from these stations in regard to the insoluble and soluble matter collected in the rain caught in a standard gauge. The results obtained have been recorded under the heading of "A Monthly Record of Atmospheric Pollution" steadily ever since in our columns, and the work and publication continue.

It is clear from this interim report of the Committee recently appointed by the Ministry of Health that the statistics we have consistently published have convinced public authorities of the waste of and injury to health, fabrics, and vegetation caused by the burning of coal in the domestic dwelling and in the furnace of the factory. Its recommendations might have been made many years ago, though fresh questions have now arisen in regard to new housing schemes. Broadly speaking, the Committee rules out the open coal fire and suggests a coke-fired boiler or gas for the domestic service and also in grates. It regards a central hot water supply as practicable, but makes no further suggestions upon this point. It admits that the whole subject of hygienic and scientific heating deserves a very much greater measure of public attention than it has hitherto received. The report is disappointing from the view of further action, and the conclusions are not followed by recommendations. Gas for the present seems one way out, but we must have it cheap and with an effective thermal efficiency, which we pointed out years ago.

THE FEES OF MEDICAL REFEREES

LAST week Sir Herbert Nield asked the Home Secretary whether he would improve the scale of fees prescribed for and payable to referees and assessors under the Workmen's Compensation Act, 1906. Mr. Shortt replied that the matter would be considered with due regard to all relevant circumstances after the Departmental Committee, which has been inquiring into the working of the Act, has made its report. The relevant circumstances in question can be stated in a few words. The fees when prescribed were on a low scale, having regard to the responsibilities of the work, while the compensations payable to workmen under the Act have considerably increased during the 14 years of legislation. Further, the payments to medical men under the National Insurance Act have been augmented, and one of the arguments for this increase is to some extent applicable to the case of medical referees and assessors—namely, that the increased cost of living implies the necessity for higher salaries.

THE ACTION OF ETHYLIC ALCOHOL ON THE ORGANISM

SOME interesting observations on this subject have recently come to us from the University of Cordoba; they are published by Professor V. Ducceschi in the *Annali d'Igiene* for February. The increased consumption of alcoholic drinks lately noticed in Italy, and probably not confined to any one of the countries where there are no restrictions on sale, has brought into prominence the question of anti-alcoholic prophylaxis, and has increased the interest felt with regard to the mechanism of the action of alcohol on the organism. Professor Ducceschi undertook a series of experiments on dogs in reference to changes produced in the quantity of lipoids in the blood by alcoholic narcosis. He found the cholesterin was almost doubled by the repeated administration of efficacious doses of alcohol. This hypercholesteræmia was the sequela of the state of narcosis; in fact, in two dogs in which the blood was analysed before administering a large dose of alcohol, who were two hours later in a condition of profound narcosis, no appreciable change in the amount of cholesterin was noticed. It was also found that the daily administration of large doses of alcohol for a period of about six weeks caused an increase in the blood of about 50 per cent. in the fatty acids and 33 per cent. in the lecithin, and it was further noticed that if the administration was suspended the amount of fatty acids and lecithin was not materially reduced in the succeeding seven days. Observations were also made on 120 individuals, half of whom were abstainers and the others habitual drunkards; in the latter Professor Ducceschi found a decided increase in the cholesterin in the blood compared with the former. With regard to the action of alcohol on the tissues it was found that in the dogs experimented on the amount of total fats in the liver was increased by 300 per cent. and the cholesterin by a small amount. In the suprarenal capsules there was a slight increase in the total fats and a diminution of about 40 per cent. in the cholesterin. There were no definite changes in this respect in the kidneys or testicle. A state of inanition favoured the changes in the lipolytic index of the tissues produced by alcohol. From these observations and experiments we are drawn to the conclusion that the animal tissues are adapted for existence in a watery medium in which the fixed constituents of the cells, and especially the lipoids, are practically insoluble. The introduction into the blood of substances with a solvent capacity, and having other physico-chemical properties fundamentally diverse from those of water, such as alcohol, ether, and chloroform, necessarily disturb the static and functional equilibrium of the tissues, changing the relation of solubility between the blood and the tissue elements. This disturbance is shown by the immediate but transitory phenomena of intoxication and narcosis, and, when the action of the poison is intense and prolonged, by the slow processes of adiposis, lipoidolysis, degeneration, and final sclerosis.

MEDICAL INSPECTION OF HIGHER GRADE SCHOOLS.

WE commented in THE LANCET of May 1st (p. 973) on the new regulations for the extension of medical inspection and treatment to children in secondary schools. In the June issue of *The Journal of Education and School World* an article by Dr. A. A. Mumford, medical officer of Manchester Grammar School, discusses the requirements of medical inspection in these schools. He points out that the Board of Education Circular 1153 on the subject offers no new suggestions as to the lines of examination to be followed, beyond those already in use in the public elementary schools, with the exception of an additional note as to fatigue generally. He maintains that medical inspection in the secondary schools must differ radically from that in force in the elementary schools in that the children are selected more or less from a section of the population inspired by a higher purpose than that of merely conforming to the rules of enforced attendance. The higher grade scholars do not suffer greatly from the defects found among the elementary school children, and when they do they are, as a rule, promptly put under proper treatment. Something more, he insists, is necessary in the secondary school examination than merely finding, tabulating, and treating gross physical defects. If the medical inspector is to be of real use in the school he must be prepared to help the teacher to stimulate the capacity of the child for the prolonged mental effort involved in examination ordeals. The effect of this mental effort should be accurately estimated, and the specific causes of fatigue, such as long distance journeys to school, improper feeding arrangements, and various other causes contributory to fatigue thoroughly and scientifically investigated. The manometer fatigue test and the spirometer, both found useful by the Air Force during the war, should be used at these examinations. As Dr. Mumford points out, inflation and deflation chest measurements are misleading and inaccurate gauges of a child's physique or vital capacity. While entirely agreeing with Dr. Mumford's conception of medical inspection in secondary schools, we think that the Board is following the wisest and most helpful course in merely outlining a scheme for these examinations and leaving it to individual authorities to supplement it as they think fit. Unfortunately, really good work is likely to be hampered by the necessity for returns and schedules exactly similar to those used for elementary schools.

It is suggested that a Research Department at the Board of Education is urgently needed to deal with these and other findings, as it is only in the hands of specialists that groups of figures can be made to yield useful information. In the hands of the ordinary official they become valueless, and his attempt to deal with them waste of time. As a plea for the establishment of this Research Department, Dr. Mumford points out that although medical inspection has been in force in the elementary schools for the last ten years, in spite of the roseate reports of local school medical officers we are still without trustworthy information with regard to the total effect on national physique of cooping up our children in the present school buildings during the most susceptible period of their lives; and we must agree that the scientific results which have been obtained are negligible. If a Research Department, in addition to helping to settle such questions, is to deal a blow at the system which crams a mass of examination detail into the adolescent boy and girl at a period when the whole metabolism of mind and body is in a sensitive state of change, we are strongly in favour of its establishment. The general health of many a man and woman has been damaged by home study and the mental endurance entailed in working for examinations. Then, too, apart from the wholesale lowering of the national physique, the present examination system, by a process of elimination, is segregating to the professional classes what can be most simply described as the "examination brain"—by no means the highest type of mentality, and certainly not the most desirable. Anything that will mitigate the present evils of the examination system will be a national asset. It must be remembered that tests of industry and capacity are necessary. Examinations cannot be abolished, but educational methods should remove their dangers.

RAT REPRESSION.[1]

DURING the war, when not only the health of the armies but the food-supplies of the nation became matters of vital importance, the danger of the rat both to the health and well-being of the community, military and civil, began to receive the attention it deserves. The Rats and Mice (Destruction) Act of 1919 put upon the citizens of London the responsibility of taking steps to destroy rats on their premises and of taking reasonable measures to keep the number of vermin in check. Dr. Howarth's Report commences with an account of the natural history and habits of rats, and tells how to distinguish the brown from the black rat. Next are given some useful hints as to the best methods for making buildings proof not only against the ground-living and burrowing brown rat, but also against the agile and acrobatic black rat. The Report warns the reader to protect all food-supplies—including any waste foodstuff thrown away—from rats, and might well lay more stress on this, possibly the most important of all measures for rat repression, since the birth-rate of rats is practically dependent on the available food-supply. A sound motto to print on the top of any anti-rat propaganda would be: *No Food, No Rats.*

When the practical point is reached as to how actually to kill rats one becomes at once suspicious from the very number of different methods suggested. When in a pharmacopœia 50 different drugs are recommended to cure one disease, it is pretty certain that little confidence can be placed in any. Several types of trap are described, all no doubt good for a short while, but experience shows that no trap is of much use in any one place for more than a few nights, and a change of type of trap should be made frequently in each locality. Possibly the best method of trapping is by the use of lithographer's varnish spread on cardboard, on which the rats become as hopelessly involved as a fly on a fly-paper. Of poisons barium carbonate and squill (*scilla maritima*) are the best and the safest. The much-advertised viruses are discussed in the Report at considerable length, and as usual are voted against. Their killing powers are doubtful, except in certain isolated rat colonies, and there seems to be no question that they may become a danger to the health of human beings. It is still hoped that some specific infectious disease may be found that can be introduced amongst rats which may kill these rodents and yet be harmless to human beings. A very ingenious suggestion has been made by Rodier that by increasing the relative number of male rats the domestic felicity of these animals may be so upset that there will follow a marked diminution of the birth-rate.

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[1] A Report on Rat Repression in the City. By Dr. W. J. Howarth, C.B.E., Medical Officer of Health, City of London. 1920.

This theory is justified by observations made among domestic animals and birds, when the number of males in a flock or herd has been increased the birth rate has invariably fallen, so that by destroying all female rats caught and releasing all males a desirable result might be brought about On the whole this Report is a very interesting and useful synopsis of what is known of rat repression

ANCIENT SURGICAL INSTRUMENTS

OUR attention has recently been directed to a pamphlet by Mr S Holth, of Kristiania Norway on Greco Roman and Arabic Bronze Instruments and their Medico Surgical Use It is a valuable supplement to Mr J Stewart Milne's Surgical Instruments in Greek and Roman Times issued at Oxford in 1907 Mr Holth purchased a series of instruments at the sale of the collection of antiquities from Syria and Palestine, once the property of Baron Ustinoff All the surgical instruments are of bronze excepting the silver handle of a knife, which bears an inscription in Greek, *Θές με, κλέπτα*, ' Put me down thief Lucian alludes to surgeons who put pretty gold and silver handles to instruments which they did not really know how to use Mr Holth figures a Roman steelyard such as Milne described, and does not, like Milne believe that it is an interloper, never employed by the profession for classical doctors weighed the drugs which they purchased wholesale being their own apothecaries A spoon spatula of Arabic origin bears it would seem its maker's name In only one other instance, related by Milne, is such a name found on an antique surgical instrument and it is well known to those who study British medical literature that makers cut trade marks and not their names on their wares until the days of George III Mr Holth's spoon spatula probably came from Palmyra, and was made in the days when the Arab Caliphs ruled in Syria Once more, as in the case of the steelyard, Mr Holth finds another contrivance similar to a like instrument in Mr Milne's series, and does not believe that it is an interloper It is a long needle made for the weaving of fishing nets, the author maintains that this needle deeply forked at each end was used to keep suture threads carefully wound up, and so always ready for use Mr Holth also describes an Arabic couching needle and a sharp spoon, the stem of which bears a scale to measure the length of fistulæ and the depth of wounds The author believes that it is practically a millimetre scale, used by some Roman surgeon ages before the metrical system was introduced by the Constituent Assembly of France at the beginning of the Revolution

CLEAN MILK

WE have dealt with the question of the supply of clean milk and its consummation to the point of fatigue The reasons for the clean supply being considered a practical necessity have long ago been amply substantiated It is difficult to understand why there should be any delay in this matter in view of the scientific evidence long placed before us in regard to the filthiness of milk supplies in general the refinements of bacteriology apart, it is enough to witness the dirty routine of the milking of the cow to make us insist on the universal adoption of superior methods in this direction We have before us a well studied and reasoned consideration of the whole question in a report published by the Research Institute in Dairying of University College Reading The authors of the report, which is entitled A Study of the Factors Concerned in the Production of Clean Milk [1] (Part I), are Edith G Knight, Kathleen Freear and R Stenhouse Williams We realise the difficulties of introducing *reforms* into the existing methods of the dairy farm and of convincing the farmer of the real prejudice to life and health which dirty methods of milk production may well involve But if, as this report shows intelligent and interested labour, aided by special appliances and appropriate buildings will secure a remarkably clean milk of good keeping quality with very low bacterial content the remedies are in our own hands The authors point to a perfectly simple and practical procedure where the application of scientific methods and strictly technical procedure are hardly needed Rigid cleanliness is regarded largely as their substitute, which includes the practice of the daily tub Science has most definitely shown which road to take and common sense should do the rest

THE LOSS OF WILLIAM OSLER

WHILE the country of his birth may be justly proud of having produced a great man he really belongs to the world and to all time Such a man was Osler and the minute of the Executive Committee of the Federation of American Societies for Experimental Biology in Cincinnati drafted by Dr C H Bunting is one of the many special tributes to the memory of Osler which can be paid by all of us to a leader in every sphere of scientific and social activity The minute runs —

> In the death of Dr Osler the medical profession has suffered an immeasurable loss Belonging to no cult or age or clime but descended in direct line from Hippocrates he was master of the art of medicine in its purest form As a teacher he was again master painting with broad strokes pictures of disease never to be forgotten by the student An investigator and an inspirer of investigation a worthy counsellor of brother physicians a delver into the history of medicine and an ornament to its letters and withal so human and of such rare personal charm as to be beloved of all who came in contact with him Such was the man we mourn We grieve not only for the loss of leader and friend but also that death overtook him in the very shadow of the great conflict which had brought him so great personal loss and sorrow and robbed him of the mellow years which were so fully his due

MEDICAL INSURANCE AGENCY

AT a *meeting of the Committee of Management of the* Medical Insurance Agency held at 429 Strand, W C , Dr G E Haslip, the chairman, presented his report for the year 1919 together with the balance sheet of the Agency for the year ending Dec 31st 1919, from which it emerged that while the expenses have increased the Agency is now self supporting and the business transacted in the year has been the largest yet done Steady progress has been made in accident and fire business and the income from all sources was £750 in excess of the income of 1918 The income earned showed an increase which was not only sufficient to meet the increased expenditure, but to continue the £1000 grants to medical charities and still leave a balance of £32 unallotted for the year The total sums distributed to medical charities up to the end of 1919 were £5 400

The report runs —

> 'In commissions and other sums earned by the Agency the three principal sources of business—life motor car and accident insurances—each show marked progress especially the former This is a satisfactory feature as life business is the most steady form of income in so far as that once a policy is negotiated until it becomes a claim by death or maturity it represents an annuity to the agency The number of new policies completed during the year totalled 63 as against 25 and 15 in the two previous years This is the highest number yet reached Motor car insurances showed steady progress and the commissions are up some £200 (All motor car premiums have been increased as from January of this year 40 to 50 per cent on pre war rates)

During the year £960 was returned in rebates to the insured being £280 more than in 1918 The sum *returned to the profession in rebates now amounts to* £7000 *The report of the chairman and the certified* balance sheet having been received and approved, the further grants to medical charities were discussed On the motion of the chairman seconded by Dr F A Gibbons it was resolved that out of the surplus funds of the Agency the following interim grants of £457 10s to medical benevolent funds be made —

Royal Medical Benevolent Fund	£150
Royal Medical Benevolent Fund Guild	150
Epsom College Benevolent Fund	157 10

As a result of this distribution the total sums allocated to medical charities have reached £5877 10s A booklet describing the work of the Agency and the advantages of insuring through it has been prepared, and this and all other information can be obtained from the Clerk *to the Agency*, Mr P N Adamthwaite, 429 Strand, London, W C

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[1] London P S King and Son Ltd Orchard House Westminster S W 1 1920 1s

ROYAL INSTITUTE OF PUBLIC HEALTH.

BRUSSELS CONGRESS.[1]

THE inaugural meeting of the Annual Congress of the Royal Institute of Public Health at Brussels was held on May 20th, with Viscount SANDHURST in the chair. After short addresses had been given by representatives of the various countries, Major-General GORGAS was presented with the Harben gold medal.

The Harben lectures on Antigens and Antibodies from the theoretical, diagnostic, and therapeutical points of view were delivered, in English, by Professor MAURICE NICOLLE, of the Pasteur Institute, Paris.

Section of State Medicine.

This section was opened by an address from Lord DAWSON, the President, who gave a résumé of the report of the Consultative Committee on the Future Provision of Medical and Allied Services.

Venereal Diseases.—An excellent paper on the Legislative Control of Venereal Disease was read by Surgeon-Commander JOHN STODDART, who said :—

> The only measure we have at present for controlling venereal disease is the prevention of quack practice, and the prohibition of sale of anti-venereal drugs generally (V.D. Act, 1917). Legislation of a medical nature should not be punitive so much as restrictive in the case of the mentally deficient, the incorrigible, or the hopelessly infected. Punitive clauses figure in the proposed divorce laws and in laws that control sexual offences, but these are deterrent laws, to prevent crime and not administrative in function to banish venereal disease.
>
> Administration aims at obtaining: (1) Compulsory treatment for the infected. (2) Some method of statistical record such as notification. This is in general use in the U.S.A. in a modified form, also in Australia, and works well. The name is withheld so long as the patient attends for treatment; the medical registrar is a State official, not a local practitioner, so that no resentment is felt by the patient; heavy penalties are exacted for divulging secret information. (3) The compulsory medical examination of suspects. This figures in the Sexual Offences Bill now before Parliament.
>
> Some of the colonies restrict those suffering from communicable venereal disease from employment involving the handling of food, the manufacture of certain articles—e.g., cigars; also from hairdressing and the nursing of children. Probably the British would not submit to such interference with their liberty as is involved in the American attempts at the State suppression of prostitution. A compulsory medical certificate before marriage is required in certain States of the U.S.A., and is proposed in Austria. Legal privilege to medical men will be necessary if he is to be empowered, as in South Africa, to inform the parent or guardian of a future bride or bridegroom if the other party is to his knowledge suffering from venereal disease in a communicable form. But we want one comprehensive measure dealing with venereal disease, not several, placed on the English Statute Book.

Cancer.—A paper on Deaths from Cancer in Ipswich since 1841 was read by Dr. A. M. N. PRINGLE, who considered that the apparent increase of deaths from cancer since that date was not real, and that the increase had really occurred only in its recognition.—Dr. J. C. MCWALTER held that cancer mortality had increased, and that the Congress should mark the beginning of an anti-cancer campaign; he emphasised the importance of an efficient public dental service in this connexion, and to avoid the irritation and toxæmia resulting from carious teeth.

Section of Municipal Hygiene.

Sir LESLIE MACKENZIE chose as his presidential address the subject of the Past, Present, and Future of Municipal Hygiene. Various papers were read on the sanitation of Brussels and Belgium generally.

Dr. R. WYBAUW (Spa) broke fresh ground in his paper on the Hygiene of Spas.

> He considered that especial attention should be paid to the sanitation and hygiene of health resorts, visited as they are by many convalescents who still carry infective organisms, or, being weaker than normal persons, are more receptive of infection. Spitting should be prohibited. The Government should make itself responsible for the hygienic precautions necessary in the construction and maintenance of medicinal mineral-water supplies; the boring must reach solid rock, the perimeter of the spring at its surface must be kept covered; no vessel should be dipped into the water; all glasses should be sterilised by steam in the vicinity of the spring. The condition of the baths is not always satisfactory at continental spas. The bath must be made of a material easily cleansed; wood should only be permitted in the case of mud-baths. The rooms should be large, well ventilated, and admit as much sunshine as possible; heavy curtains should be abolished. The laundry of a bathing-establishment should be as perfect as that of an ideal sanatorium. Exported mineral water, from the moment it leaves the spring till the sterilised cork is put into the bottle, should not come into contact with any non-aseptic surface or with the hands of a worker.

Tuberculosis.—A discussion on the Administrative Control of Tuberculosis was opened by Dr. R. VEITCH CLARK (Croydon). It was generally agreed that greater accommodation was wanted for advanced cases, but the difficulties of making this provision were emphasised by the speakers. It was stated that one of the London metropolitan boroughs had endeavoured to unite with its two neighbours to provide a large dwelling house for this purpose, but that the scheme broke down, partly owing to the difficulty of finding a suitable house without damaging the value of the adjoining property by numerous funeral processions. The final blow to the scheme was the insistence of the London County Council that the selection of the cases for the home should be made by its own medical officers.—Dr. HYSLOP THOMSON (Herts) suggested that the advanced case should be housed in the same institution as the early and chronic case, separate blocks being provided for each class of case. A separate entry should be provided for the advanced block, and the funerals conducted in such a manner as not to attract the attention of the other patients.—Dr. J. CROCKET (Glasgow) was not in favour of the village settlement as a separate entity; the patients still required a considerable degree of medical supervision, and the settlements should be established on the fringe of the sanatorium grounds.—All the speakers were agreed that farm work would be found too hard; lighter occupations, such as horticulture and basket-making might be taken up. The patients should always be paid for their work, even if the payment was in reality a subsidy, since payment acts as an incentive to industry. Several speakers commented on the apparent failure of the sanatorium.—Dr. HYSLOP THOMSON ascribed the disappointing results to the absence of a uniform standard of institutional treatment. There was very little uniformity of practice in respect of rest and graduated exercises in relation to the patient's temperature. While in one institution a patient was kept rigidly at rest if his temperature taken in the mouth reached 99°F., in another he would be put to work.—Dr. J. R. KAYE considered that a patient was often quite able to work, and benefited by work, when his temperature was slightly raised. Workshops were being provided in sanatoriums in the West Riding, but he found it was difficult to get men to work. He pointed out that the proposal to relax the restrictions in training colonies for tuberculous discharged soldiers would be prejudicial to their welfare; these men needed supervision and control to the same extent as the civilians. The provision required at present was not so much new curative establishments, but ordinary dwelling houses. Overcrowding was increasing; we were making cases of tuberculosis.

This view was supported by Dr. McFadyen's statement at the discussion on housing. He pointed out that the death-rate from tuberculosis in Letchworth Garden City last year was the lowest in Hertfordshire.

Dr. WYBAUW feared that if we were to spend enormous sums on sanatoriums and village settlements we should have no money left on keeping healthy those who are not yet tuberculous.

Professor E. SPEHL (Brussels) made some novel suggestions with regard to the selection of the pre-tuberculous.

> He determined the vital capacity of persons over 7 years of age by using Verdin's spirometer; for children below 7 the circumference of the thorax was used as a guide. The product of either of these figures and the weight divided by the height gave an index, the vital quotient. Indices affording information as to the respiratory function were afforded by dividing the vital capacity by the height and weight respectively. Average values had been worked out for persons of different ages; also for groups of soldiers, non-tuberculous civilians, and consumptives. From the information so obtained Professor Spehl constituted standards for selecting those of weak constitution who require either more food or breathing exercises, and those of very weak constitution, the pre-tuberculous, requiring open-air treatment.

Housing.—Dr. E. W. HOPE (Liverpool) and Lieutenant-Colonel F. E. FREMANTLE contributed to a discussion on housing.

Dr. G. Q. LENNANE (M.O.H., Battersea) said that a scheme for building on the small sites available in

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[1] We regret to have been unable to publish the account of this Congress while the work was proceeding.

Battersea had been sent to the Ministry of Health more than a year ago, but was still awaiting the Minister's consent to commence building

He thought the law as regards houses in an unsatisfactory condition of repair placed authorities in an apparently strong but really weak position If the houses were not put into repair, the Council, to enforce Section 28 of the Housing Act, 1919 would have to create a Works Department, and make a considerable outlay for which they would receive an inadequate pecuniary return He considered the financial provisions of the Act to be very inadequate, and the institution of Housing Bonds financially unsound The Government should have financed the scheme instead of throwing the burden on the locality

Dr Hope considered that in view of the large increase of wages it was only reasonable for the working man to pay more rent Dissatisfaction was expressed with the restrictions of work placed upon building by the trade unions

Councillor WILLS (Bermondsey) said that if the authorities as landlords set out to build a good house that would last 100 years they would easily get their money back in the shape of rent.

He reminded the meeting of the remark of Lord Leverhulme at the inaugural ceremony, that it was not the first persons over the bridge that should pay in the shape of toll the whole of the cost of the bridge The Ministry was continually reducing its own standards in his council he had called attention to the fact that in plans for four roomed flats in Bermondsey the Ministry wanted a fireplace taken out of a child s bedroom, and, unfortunately, the majority of the council had agreed Councillor Wills spoke strongly in favour of the resolution, subsequently agreed on by the section, "that this meeting is of opinion that all houses built in the future must not be of a lower standard than that originally given in the recent manual of housing, and shall not be lowered for reasons of economy

Female Labour and Infant Hygiene.

The meetings of this section were particularly well attended by our Belgian colleagues The Presidential address of Mrs. SCHARLIEB was followed by a paper by Lady RHONDDA pleading for the employment of women civil servants as administrators in the Maternity and Child Welfare Department of the Ministry of Health.—Lady ASTOR drew a vivid picture of the evil effects of alcohol, especially on the poorer classes of the community —Lady BARRETT read a suggestive paper on the added strain of pregnancy on a tired woman and the desirability of diminishing her excessive work Lady Barrett advocated the provision of communal kitchens, dining rooms, and laundries, central heating and electric light in the home, also a water supply to each floor. Incessant work, noise, worry, and anxiety were disturbing factors in pregnancy. Day nurseries should not refuse the children of mothers doing domestic work at home. Professor C. S Sherrington had shown that six hours' work daily results in the optimum output, and this period should be aimed at for the mother.

Considerable discussion arose on the merits of the creche. The experiences of the medical officer of the creches at Liége were quoted. Owing to the excessive mortality among the children attending he had protested against their continuance Several Belgian speakers considered them an unfortunate necessity under present conditions.

Factory work for women —There was much difference of opinion as to the desirability of factory work for women Mdlle. ALICE WILLEMS, Mdlle. v. CAPPE, and others advocated legislation prohibiting factory work to married or pregnant women, while Lady BARRETT, Lady RHONDDA, and Dr. W. CULLIS considered that a woman should be left free to make her own decision on the point —Dr. C. W. HUTT (Richmond) suggested that the employment of the married woman with children and of the pregnant woman were separate problems and should not be discussed together. The effect of industrial employment on infant mortality and on abortion were discussed, the practicability of a 4 fr a day State subsidy to mothers was negatived. Finally the section voted for the gradual suppression of the work of married women by every means possible short of legal prohibition

Mothercraft —Mrs H. B. IRVING considered that the civilised mother had three elementary rights · (1) free medical advice and treatment; (2) to suckle her child and to receive instruction in mothercraft; (3) to live in decent surroundings and not to be compelled to work outside her home. Much difference of opinion followed as to the period of life at which mothercraft should be taught —Dr. HUTT thought that only the broad outlines of mothercraft could be assimilated by the girls in elementary schools, while Miss M. DOUGLAS WILSON (health visitor, Derbyshire C C.) thought that to begin with the mother was to begin too late, as many superstitions had to be cast out of their minds

Abuses of laundry work.—Mdlle. DOROTHEE ROBERT (secretary of the Union of Belgian Laundry Women) called attention to the disadvantages under which laundry girls and women worked in Belgium.

Young girls of 14 or 15 years had to carry heavy baskets of soiled linen or wheel a heavy hand cart, if no one under the age of 18 were allowed to do this work the proprietor would hire a lorry, as the time of adults is too precious to be wasted in fetching and carrying the washing Soda was used in excessive quantities to replace the dearer soap, and in winter chlorine to bleach the linen, both these practices affected the skin of the hands and gave rise to sores Mdlle Robert said she had known women at special times iron for 102 hours a week Out of 50 or 60 women she had known during the 12 years she had worked in a laundry only five had not had varicose veins at the age of 16 or 17 She appealed for more visits by inspectors at night as well as by day, and for improvement of ventilation, drainage, hours and conditions of work in laundries, and for a room set apart for the workers meals

Dr. CHRISTINE MURRELL gave an account of the growth of a child welfare centre. In order to avoid encroaching more than necessary on the scanty leisure of the hardest of all workers, the home keeping mother, treatment, including dental treatment, should be provided *at* the centre.

Dr. S G. MOORE described the system for the voluntary notification of pregnancy introduced by him in 1916 in Huddersfield The system had worked without difficulty or complication of any kind The percentage of notifications had gradually increased from 11 to 34. The visits to the mother were made by a medical woman; if any condition were found requiring treatment the expectant mother was advised to consult her usual doctor, a copy of the report was sent to the doctor and midwife. A following up visit was made after a short interval. Great importance was attached to doing or saying nothing which might reflect in any way, however remotely, on the prestige of a midwife. Material help was also afforded, home helps were provided if necessary.

Dr ERIC PRITCHARD spoke against the separation from its mother of the young infant sent to hospital Certain abdominal operations performed in hospital were very dangerous, although successful when carried out in the home, he attributed these results to infection, since the baby was immune to the germs in the environment of its own mother, but not to foreign germs.

At the final meeting of the section several resolutions were carried which, if officially adopted, will assist in bringing the Belgian social legislation up to the level of the British.

Industrial Hygiene.

The Section on Industrial Hygiene discussed the necessity for providing more adequate first aid equipment in accordance with the special needs of various factories, and of their periodical inspection by doctors It was agreed that the hygienic conditions of factories are not sufficiently controlled, there are only three medical inspectors of factories for the whole of the United Kingdom. Although the lay inspector could check the number of washing basins, w c 's, and urinals provided they naturally consider that this is not part of their job, and the result is that the w c.'s especially are too often left in a most objectionable condition. Many speakers considered that ventilation and lighting require further control, but that the methods of testing lighting now recommended are too laborious It was suggested that much the same practical tests should be applied to the lighting of factories as those used in testing the adequacy of lighting of forecastles of ships. If when the lighting is reduced by one third a newspaper can be read in any part of the forecastle the lighting is considered to be adequate. Similarly, a workman should be able to read a newspaper placed in the position of his work in any part of the workshop, and this practical test was generally regarded as sufficient.

Miss A M. ANDERSON (Principal Lady Inspector of Factories) stated that successful production depended on skilled attention being paid to the personal health and welfare of the worker.

During the war, with its call for speed in the production of munitions, it was possible to make a rapid advance in the provision of industrial canteens, first-aid, rest-rooms, cloak-rooms, washing conveniences, and improved selection of workers for particular processes, and in various ways to advise recreation to prevent excessive fatigue and to restore the over-tired worker. She said that the knowledge gained of useful measures for promoting welfare was being rapidly spread and popularised by official pamphlets from the Home Office, and orders under the Welfare Clause of the Factory Act of 1896 were steadily increasing the local requirements in this direction. It was to be hoped that the governing body of the International Labour Offices when preparing the agenda for the Annual Labour Conference would receive many suggestions from employers and workers in well-run factories.

Mr. H. J. WILSON (H.M. Superintending Inspector of Factories, Scotland), read a paper on the Employment and Distribution of Industries in their Relation to the Physical Development of the Young Workers. The work of the National Service Medical Boards, 1917–18, demonstrated the unsatisfactory physique of recruits from the textile districts. He quoted the following figures:—

	Height.			Weight.	
	ft.	in.		st.	lb.
Men born and bred in rural areas (440 examined)	5	8·8	......	12	4
(Sheffield) City-bred indoor worker (1080 ,,)	5	4·35	......	9	10
(Birmingham) ,, ,, ,, (500 ,,)	5	6·6	......	9	8
(Glasgow) ,, ,, ,, (230 ,,)	5	2	......	8	12

But it would seem that the occupation in itself is not always at fault; in the jute industry round about Dundee the physique of the workers in the country factories was much superior to those of the town. It was suggested that the rain and inclement weather of the northern towns prevents the young city children from getting out into the open air as much as in the drier cities of the south.

A practical paper was read on Miners' Nystagmus by Dr. T. LISTER LLEWELLYN. The general view of the section was that nystagmus was caused by defective lighting, although one speaker still considered that the cramped position was at fault. Dr. Llewellyn held that the underground ways in mines should be whitewashed or the walls should be sprayed with moistened non-siliceous stone dust. Optical glare must be avoided, and the light should be thrown on to the miner's work by an electric lamp supplied by an accumulator, the light being fixed on to the man's head or chest according to the actual working position assumed.

Mr. LEON GASTER (honorary secretary of the Illuminating Engineering Society) said that adequate industrial lighting, avoiding glare and eliminating inconvenient shadows, would lessen accidents, fatigue, and increase output. The interim report issued in 1915 by the committee appointed by the Home Secretary recommended that there should be general statutory power to demand adequate lighting in factories. Tests recently conducted in the United States of America showed that when industrial lighting was improved a very considerable increase in output (8 per cent. to 27 per cent.) had resulted. A slight gain in efficiency would amply compensate for the increased expenditure in lighting. In America six States possessed legislative codes of industrial lighting. International action was necessary, so that all countries would adopt the same general principles in framing their regulations.

Naval, Military, Tropical, and Colonial Hygiene.

This section was well attended by French and Belgian service medical officers. M. VINCENT expressed his belief in the value of the prophylactic treatment of dysentery by antiserum injections.—Major JAMOT gave his experiences of the organisation of a prophylaxis section against sleeping sickness and its results in French Central Africa. It was advisable to avoid establishing settlements in the tsetse fly zone, but when these were absolutely necessary the bush and low undergrowth should be cleared. Early diagnosis before the disease had obtained a grip of the patient was as important as in syphilis.—Dr. G. C. LOW advocated the intravenous injection of antimony tartrate for bilharziasis and gave a detailed description of the technique and dosage.—Surgeon-Captain P. W. BASSETT-SMITH (chairman of the section) spoke of anthrax from Japanese shaving-brushes, and referred also to the antiscorbutic potency of lozenges made from concentrated lemon-juice.

Bacteriology.

Professor J. G. ADAMI in his opening address as President of the section emphasised the urgent need for placing the classification of species and variants upon a rational basis in view of the confused jumble in nomenclature and in differential methods which the intensive research of recent years had produced. He urged the formation of a committee to attain this most desirable end on international lines.

Perhaps the most interesting feature of the section was the discussion on milk. A valuable paper on some aspects of the milk problem was contributed by Dr. R. STENHOUSE WILLIAMS (Research Bacteriologist for the Board of Agriculture), who is working at Reading in conjunction with Captain J. Golding.

The author gave the results of the bacteriological examinations of 27 samples of milk supplied to different welfare centres. The bacterial counts were high; dirt was found in all the samples, two of which also contained the bacillus of tuberculosis. The unsatisfactory condition of the milk had led welfare centres to adopt different milk products rather than whole milk for the feeding of infants. The diminution in the consumption reacted upon the milk industry, so that the sales were relatively low and the price in the past had been unsatisfactory. In addition the industry was put to serious monetary loss as the result of souring, splashing of milk from the milk churns, unequal supplies from milk producers, and the need for pasteurisation.

An inquiry into the causes which led up to these conditions showed that in the past the consumer had been quite unwilling to pay more than a flat rate] for milk. The farmer had not known what it cost him to produce his milk and had not kept milk records, so that he did not know which of his cows were profitable and which not. The dairy schools in the past did not teach methods of clean milk production, with the result that the dairy farmer had no real conception of the work he was undertaking. The milk was put in churns which had never been properly cleansed either by the receiver of the milk or by the farmer; they travelled by rail under unsatisfactory conditions, to be handled on a railway platform under conditions which were still more unsatisfactory, and were finally delivered to the consumer after suffering much at the hands of many different persons, amongst whom there was an entire lack of coöperation. Indeed, in many cases the trade interests of the people concerned in the production and distribution of milk were diametrically opposed.

An improvement of the milk-supply in this country might take place during the next generation, for the consumer was discovering the value of fresh milk as a food, and the control instituted during the war had established the right to charge a better price for a better article; further, the investigations of the Costings Committee, the insistence upon income-tax returns from farmers, and the increased cost of foodstuffs and labour had caused farmers to study their cost of production more carefully. Attempts had also been made to bring producers and distributors into mutual coöperation. The ultimate success of the movement would depend upon the consumers' appreciation of milk as a food and upon their willingness to pay a reasonable price for an improved article.

Professor J. SHARE JONES (Liverpool University) put in a plea for the better education of veterinary students. Not so much the clinical work of veterinary surgeons, but their scientific knowledge might be greatly increased. The improved scientific education of the veterinary surgeon would result in his being used more for preventive work; the problem of clean milk would then be rapidly solved by his real influence on the farmer.—M. M. KUFFERATH, who is working at the Chemical Laboratory in Brussels and the Pasteur Institute, read a useful paper on the Systematic Examination of Milk. His scheme is very much the same as that used in America. On a single sheet he gives information as to the bacteriological content, the presence of *Bacillus coli* and tubercle bacillus, the presence and number of leucocytes, and the quantity of filth. Marks are given to the milk under each heading, and a report is sent on to the town hall to the administrative department for action if necessary. He described a recent epidemic of gastro-intestinal disease arising from pathogenic streptococci in milk, derived from one cow affected with mastitis out of a herd of about 40. Organisms were present in only a limited proportion in the milk, but 135 persons were affected and a number of children died.—Dr. R. M. BUCHANAN (the city bacteriologist of Glasgow) stated that a similar outbreak had taken place in that city, but had not affected the gastro-intestinal tracts so much as the pharyngeal and tonsillar regions.—M. KUFFERATH found that the long streptococci in the last stages of disease in the cow became shortened to resemble *Streptococci pyogenes.*

The general feeling of the meeting with regard to milk was that the milk shed should be made almost as clean bacteriologically as an operating theatre, and that antiseptics would probably be of more avail than an attempt at asepsis.

Anaerobes —A discussion on Anaerobes was opened by Professor WEINBERG (Pasteur Institute, Paris)

His communication dealt with the serum treatment of gas gangrene as being the latest phase of his already distinguished work on the bacteriology and experimental pathology of this extremely varied infection Indisputable proof was given of the value of antitoxic sera in the great majority of cases it was notable that the serum injections were not attended with ill effects in those who had received tetanus antitoxin in connexion with a previous wound The success already gained by Professor Weinberg gives promise of complete mastery over this polymicrobic complication of soil contaminated wounds In the latter part of his paper he discussed the value of complement fixation in identifying the multiplicity of microbes in an affection such as gas gangrene and emphasised the necessity of keeping in view the possibility of group reactions

Dr BUCHANAN contributed his experience of finding a number of the types of anaerobic bacilli in the course of a large series of hair dust examinations, primarily undertaken for the discovery of the bacillus of anthrax

The morbid lesions resulting from many of the experimental inoculations of the hair dust were similar to those of gas gangrene and the organisms found were of the same types In 225 subcutaneous inoculations there was a mortality of 18 per cent due to anaerobes alone and another 10 per cent to their pathogenic action in association with the bacillus of anthrax The hair of animals was naturally exposed to contamination by soil and excrement and the resulting hair dust was therefore liable to harbour the spores of anaerobes similar to those associated with the gangrene occurring in war wounds He mentioned that most of the shaving brushes responsible for the spread of anthrax were imported from Japan with the certificate that they had been disinfected The British authorities however were instituting disinfecting stations throughout the country for materials of this character

Dr DAVID THOMSON made an interesting contribution towards our knowledge of biochemical organisms

He has succeeded in growing masses of gonococci reaching the bulk of 50 c mm (about the size of two thumbs) He has split the germs biochemically into three substances soluble in alkali in acids and alcohol respectively All organisms contain these three substances in different proportions it is now possible to identify germs biochemically according to the proportions present For instance gonococci contain 90 per cent acid soluble and 10 per cent alcohol soluble substances tubercle bacillus contains 40 per cent alkaline soluble 30 per cent acid soluble and 30 per cent alcohol soluble substances Toxin can be separated from all three of these substances Later he found that the different toxic remainders are antigenic as estimated by the complement-fixation test being comparatively non toxic considerable doses can be given—namely up to 10 000 million or more All animal flesh can be split up into the same three substances as organisms and a material apparently identical with the toxin from bacilli has been obtained from all the various proteins of animal and vegetable origin he has examined All living things apparently contain some endotoxic product This material is secreted in the urine Other interesting bio-chemical substances obtained from bacilli are various indicators such as tumeric these are also found in the urine

Dr COHEN read a paper on a Diplococcus found in a Case of Acute Articular Rheumatism which, while allied to the gonococcus, did not respond serologically to that organism He held the view that acute rheumatism was a disease that in one patient might be caused by one organism, and in another by a different organism

Dr W E GYE and Dr W CRAMER communicated a note of their work on the rupture defence mechanism in connexion with the anaerobic micro organisms of gas gangrene

Professor BENJAMIN MOORE advocated the use of nitrogen peroxide for disinfection of the upper air passage in influenza and other respiratory diseases

Chemistry

Water supplies —On the first day a group of papers dealing with water supplies was read, they contained a summary of the experiences of the sanitary medical officers on the various fronts and of water engineers of towns The discussion centred on the chlorination of water supplies It was considered that this method had been proved the best for purifying water in the field in Gallipoli and France and on other fronts The slightly objectionable taste sometimes found was accounted due to chlorination being imperfectly carried out unfortunately excess could only be removed by methods impracticable for the field The Horrocks s box must be used and the correct amount of bleaching powder added It was agreed that the R A M C soldier belonging to the Sanitary Section and the man in charge of the water carts, usually an ordinary private, should be instructed in principles of chlorination of water In the Belgian army the Horrocks s box was apparently not used —Mr JOSEPH RACE (the water engineer of Hereford) communicated an exceptionally valuable paper on the Chlorination of Town Water supplies

The ability of medical research to save money was demonstrated by Professor BENJAMIN MOORE, the President of the Section his investigations on the path of entry of trinitrotoluene into the human system saved the nation a very considerable sum He found it unnecessary for the workers to wear respirators, as the substance was not absorbed through the lungs Certain susceptible persons by rolling the product in their hands, get it into their systems

Accessory food factors —On Friday afternoon a discussion took place on Accessory Food Factors The most controversial paper was read by Mr JEPHCOTT, M Sc , who said he had demonstrated that although the antiscorbutic vitamine is the most susceptible to the influence of heat, it is not destroyed during the drying of milk by the roller process This was opposed to the view of the workers at the Lister Institute, who consider that a certain amount of destruction takes place Mr Jephcott held that their conclusion resulted from the difficulty in feeding guinea pigs with milk, they cannot take a large amount, but he fed the animals with milk in double concentration and found no disease occurred —Mr J E DRUMMOND, D Sc (member of the Joint Medical and Lister Institute Committee on Vitamines), gave an account of the work of this committee —The paper of Dr E ZUNZ (University of Brussels) was a valuable contribution to the study of vitamines

Captain GOLDING S paper showed the need of research in the bio chemistry of milk production

He held that milk was a perfect food for mammals of the same species if the mammals who produced the milk were living under natural conditions When the cows were housed in shelters and fed artificially vitamines might be deficient in the milk We did not know the extent to which vitamines were deficient in winter milk research was being carried out on this point at the Dairy Research Institute University College Reading The paper on the Contamination of Milk brought out the point that lactic acid organisms were not harmful in themselves as was well known in Ireland many of the peasants never drink milk in its fresh state but always when sour In the East milk was put into animal skins with the express purpose of souring it In ordinary town supplies however the souring of milk was an indication of the presence not only of lactic acid organisms but also of those associated with the presence of manure in the milk

A General Resolution

A recommendation was sent by the section to the Council of the Institute that a general resolution should be put forward pointing out the necessity of practical instruction of the public in the elementary laws of hygiene and nutrition and the prevention of disease. It was universally agreed that this International Conference could not fail to have good results

TUBERCULOSIS

"Natsopa ' and the Psychology of Industrial Convalescence

'NATSOPA is a Lewis Carroll name for the new tuberculosis sanatorium of the National Society of Operative Printers and Assistants This institution is an outcome of close and friendly cooperation between employers and employed associated in an effort to remove from the printing industry the stigma of consumption It is an instance of a trade voluntarily shouldering its own responsibility for the health of those who follow it, and so a duty owed to the community is fulfilled The sanatorium, which is situated at Wellsborough Leicestershire and was recently opened by Lord Northcliffe is managed entirely by operatives and owes its being to the keenness of Mr G A Isaacs general secretary of the society The line of treatment has already been tried with success in America for this is not an ordinary sanatorium It is a factory as well and the convalescing patient is to be encouraged to work for such period as he is medically allowed *at his own trade* The psychological effect upon a convalescing patient of getting back to skilled remunerative employment and not wasting his time doing nothing, or attempting too early to resume full working hours, to be followed by early relapse, can hardly be over estimated There can be little doubt that ordinary sanatorium treatment has owed its partial failure to lack of after-care on these lines. The principle of after-care to be followed is that strongly recommended in the first report issued by the Medical Research Committee early in 1915; and although this report dealt with the boot and shoe industry, the recommendations apply equally to the printing trade, and were brought to its notice.

The psychology of industrial convalescence is here fully recognised from two points of view. First, with regard to the influence exerted by occupation instead of idleness, and then by that occupation being useful and of the kind which is to be followed when full health is regained. What is of accepted value for the convalescing consumptive is equally of value for other forms of disease—a fact which is now being recognised by the Ministry of Pensions for invalided soldiers. Useful occupation, whether it takes the form of training the disabled in order to convert them into productive members of the community instead of leaving them to be dependents on charity, or of resuming by easy stages a skilled process, facilitates recovery and converts a discontented invalid into an eager craftsman. We must no longer be content to free patients from the acute period of disease, but must conduct them through practical convalescence to resume their place in life as productive units.

Vejlefjord Sanatorium Publications.

The annual report (1919) for Vejlefjord Sanatorium, Denmark, marks the twenty-fifth anniversary of the sanatorium. There are two clinical papers, one by Professor Saugman on pneumothorax treatment, the other by his assistant, Dr. Gravesen, on the treatment of tuberculous pleural effusions. Professor Saugman also contributes "A Retrospect"—a survey of the achievements of the antituberculosis campaign in Denmark since the middle of last century. But the most valuable of all the papers in this report is undoubtedly Professor Saugman's analysis, made in 1920, of the cases discharged in the period 1900–17. Of the 2360 patients in this category, all but 164, or 6·9 per cent., were traced. By 1920, 44·9 per cent. of the total were fit for ordinary or light work and 42·5 per cent. had died of tuberculosis. There were also 65 deaths from causes other than tuberculosis. It was found on analysis of this material, according to the various stages of the disease, that 78·6 per cent. of the first stage cases, 73·6 per cent. of the second stage cases, and 27 per cent. of the third stage cases were fit for ordinary or light work in January, 1920. The deaths from tuberculosis in these three stages were 5, 15·2, and 61·7 per cent. respectively. In connexion with these remarkably good results it should be borne in mind that Vejlefjord Sanatorium caters for the upper and middle classes.

Tuberculosis Journals.

The April number of the *American Review of Tuberculosis* (Baltimore: National Association for the Study and Prevention of Tuberculosis. 35 cents.) begins with a paper by Dr. J. Burns Amberson and Dr. Andrew Peters on the effect of influenza on pulmonary tuberculosis. Their investigations into the fate of 1544 ex-patients from Loomis Sanatorium show that of 86 deaths 18·6 per cent. were due to influenza. Of the patients admitted to the sanatorium during 1919, 21 per cent. had suffered from a definite attack of influenza during the recent pandemic. After reviewing the extensive literature of this subject, they conclude that no convincing evidence has been produced showing that tuberculous individuals possess any immunity to influenza. They also find that influenza often marks the inception of definite pulmonary tuberculosis which did not previously exist as a clinically demonstrable disease. In a short note on ten cases of pulmonary tuberculosis treated with sodium gynocardate "A" Dr. Max Biesenthal finds this drug valueless. A paper by Dr. John N. Hayes on Secondary Invaders of Tuberculous Lungs emphasises the sinister importance of *Streptococcus hæmolyticus* in connexion with cavity formation. In a paper freely illustrated by tables, Dr. Edgar Mayer describes his experimental studies on the Effect of Ultra-violet Light on the Intradermic Tuberculin Reaction. In a paper on Work Classification for Sanatorium Patients Dr. William T. Cannon unconsciously gives the key to the problem of sanatorium unrest in institutions where consumptive labour is exploited. He writes: "The advantage the sanatorium derives from its patient employees is one of economy, as it is enabled to avail itself of labour at very much less cost than if regular city employees were used, thus reducing the running expenses by thousands of dollars a year." The last, but one of the most interesting, of the original papers is by Dr. S. Adolphus Knoff, an old pupil of Dettweiler. Discussing Ideals in the Treatment of Tuberculosis, he indulges in digressions as instructive as his main theme. One of his digressions is an eloquent refutation of Professor Fishberg's libel on the consumptive, whom he has stamped as selfish, egotistical, and egocentric. Dr. Knoff's long list of unselfish consumptives includes the name of Captain Georges Guynemier, who fought 800 battles in the air and brought down 74 enemy aeroplanes, becoming the famous ace of aces before his death in action over the German lines.

Pensions for Consumptive Soldiers and Sailors.

The Minister of Pensions announces that, having considered the recommendations of the Inter-Departmental Committee on Tuberculosis (Sanatoria for Soldiers and Sailors) 1919, he has decided that men suffering from pulmonary tuberculosis attributable to or aggravated by service, who on the conclusion of sanatorium treatment undergo a prescribed course of extended treatment combined with training in a training colony, shall be granted a pension at the 100 per cent. rate for six months from the date of leaving the colony. Thereafter they are to receive a pension at the rate corresponding to the degree of their disablement, but not less than 50 per cent., throughout the subsequent period of two years. This award will be subject to the condition that the pensioner presents himself when required for inspection and consideration as to the need for further treatment. The arrangement will apply also to the pensioner who is not recommended for a further course in a training colony, the 100 per cent. pension in his case commencing from the date of his discharge from the sanatorium.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Report of the Irish Public Health Council.

THE Report of the Irish Public Health Council, which has been expected for some time, was laid on the table of the House a few days ago. Until the entire document has been studied one cannot give a considered opinion on the many points raised in the Report. There are, however, some outstanding features to which I may be permitted to draw attention without delay. Perhaps the most noticeable fact in relation to the Report is that, with the exception of one paragraph, it is unanimous. It is true that the exception, dealing as it does with the constitution of the central authority, is not altogether unimportant, but, nevertheless, it is noteworthy that a Council, consisting, apparently, of very discordant elements, should in a few months have agreed on so many suggestions of a far-reaching and radical nature as the Report contains. The suggestions put forward will no doubt receive and benefit by many criticisms, but it must be admitted that the scheme as a whole is courageous, and further that it contains much of what has been steadily demanded by the profession for years back. The Council suggests the establishment, for example, of a Ministry of Health for Ireland, with its more important activities under the control of a representative and democratic council; the establishment of an Irish medical service, with entry by competitive examination; the total separation of medical work from the Poor-laws; and the development of sanitary administration in Ireland. On all these points the Council has gone far to meet the demands put forward by the profession

No doubt the Report is not all the profession would like it to be, for a necessary condition of unanimity is compromise The great weakness of the whole scheme is to be found in the fact that the Ministry of Health proposed to be established is—as in England—to have many functions unrelated to health The Council states that it made every endeavour to find another solution, but failed One may surmise that some of the difficulties were as much personal as intrinsic It is a pity that a Ministry which should find its energies thoroughly occupied with matters directly bearing on health may have to fritter away its time on the multifarious activities The introduction into the very heart of the Ministry of a council with power of control and not merely of advice, is something of an experiment in Irish administration which one heartily welcomes It is true that there is an excellent precedent in the Congested Districts Board, where the entire Board, except two members, is chosen as representative of the interests with which the Board deals Of the proposal to establish an Irish medical service with direct entry by competitive examination, with immediate absorption of the entire Poor law medical service as we know it, we do not anticipate any serious criticism from medical quarters, or, indeed, from educated lay opinion Where medical criticism will chiefly be heard will be in regard to the duties to be entrusted to the medical service It is proposed that it should give attendance not only to the poor but to insured persons Unless this intention is worked out with great care it will cause serious disturbance to many medical men engaged in working class practice The Council has realised that such a difficulty exists, and states that rigid lines cannot be laid down at present, and that it may even be necessary to exclude certain industrial areas from the general scheme Again, medical criticism will no doubt, object to the inclusion of all insured persons in the class to whom the medical service is to administer, and will demand an income limit In a first impression of the Report I only mention one other point at present—the attempt to link up the entire hospital system and connect it with the domiciliary curative work, and at the same time to help to solve the problem of the voluntary hospital This seems to be on all fours with the Interim Report of Lord Dawson's Consultative Council

The Tragic Death of Dr Frederick Charles Smyth

Gloom has been cast over the medical profession in Belfast by the sudden death of Dr Frederick Smyth from a motor accident, which occurred shortly after midnight in Ashley avenue, a few yards from his own residence At the inquest the jury returned a verdict of "Death from shock and laceration of the brain following fracture of the base of the skull accidentally received by being knocked down by a motor car while assisting to start it" The jury expressed sympathy with the widow and family of the deceased, and commended both to the consideration of the gentleman who was driving Dr Smyth, and who promised that he would do all he could in the direction indicated

Queen's University of Belfast

In connexion with a new department of dentistry the Senate of the Queen s University of Belfast, at a meeting on June 16th, made the following appointments lecturer in dental mechanics Mr H Elwood, L D S, lecturer in dental surgery, Mr W Marshall Swan, L D S, lecturer in orthodontia, Mr H T A M'Keag, B D S, lecturer in materia medica and metallurgy, Mr W H Hunter, L D S The Belfast hospitals are taking steps to provide the necessary clinical facilities The Senate also appointed a committee to consider the whole question of the establishment of a department of veterinary science, as requested by a deputation of Belfast veterinary surgeons, who, as representing the North of Ireland Veterinary Medical Surgeons' Association, had appeared before the Standing Committee of the University

June 21st

PARIS

(FROM OUR OWN CORRESPONDENT)

The Budget of the Ministry of Hygiene

THE budget of the new Ministry—de l Hygiène de l Assistance, et de la Prevoyance Sociale—is at the moment under consideration by Parliament The total demand is for 242 million francs, of this sum 105 millions are to be devoted to purposes of relief and only two and a half millions to hygiene This figure is universally considered too small, in view of the enormous efforts that must be made in the prophylaxis of infective diseases alone The Academy of Medicine, on the motion of M Roux, director of the Pasteur Institute, has made a vigorous protest, demanding an increased vote of credit In the House the estimate of 300 000 francs for tuberculosis dispensaries was immediately raised to three millions

New Hospitals for Paris

The plans of reconstruction of the Paris hospitals already outlined in THE LANCET have been developing on more definite lines M Mesureur, the Director of the Assistance Publique, has asked for a vote of 150 millions, the expenditure of which would be spread over 10 years involving an annual addition of 15 millions to the income of the town of Paris The Hôpital Beaujon and the Hopital de la Charite, in the centre of Paris both old buildings which are tumbling down, will be demolished and reconstructed outside the actual radius of the capital each on a site of 100,000 square metres with modern equipment, maternity and tuberculosis departments, and so forth A second lying in department will be constructed at the Maternité at a cost of 640 000 francs The surgical department of Professor Gosset at Salpetriere will be rebuilt and greatly enlarged, the cost will be 1,100,000 francs, of which Professor Gosset himself will give 350,000 for the installation of an amphitheatre and class rooms At the Hopital Necker Professor Legueu's department will also be enlarged, and of the estimated cost of 680,000 francs Professor Legueu offers 50,000 His predecessor, Professor Guyon, in his time also contributed to the equipment of his department At the St Louis, St Antoine, Laennec, Enfants Malades, and Enfants Assistés hospitals extensions are being contemplated, and new maternity and physio therapeutic departments, and special departments for radium therapy, will be erected The Hopital Claude Bernard for epidemic diseases will be extended to double its present size, the Hopital Bichat will be transformed and enlarged, the Hopital Cochin will also be enlarged and extended, and will take over the old hospital for male venereal diseases (Hopital Ricord), a third pavilion will be built to the new Hôpital de la Pitié, to be devoted entirely to tuberculous patients The naval hospital at Berck sur mer, which belongs to the Assistance Publique of Paris, will be enlarged and protected against encroachment by the sea by large works (140,000 francs), a sanatorium with 1000 beds for curable consumptives will be built in the department of Seine et Oise, at Thins The municipal council of Paris has decided to raise the daily fee payable to the hospital by patients who are not paupers because of increased expenses, from 5 francs to 17 20 francs in the medical wards, and from 10 to 19 francs in the surgical wards

The Hygiene of School Buildings

For some time prefects have been in the habit of lending school buildings during those hours when no classes are being held, especially on Sundays and in the evenings to various societies for scientific congresses, musical or social gatherings and during election times political meetings Of late these meetings have become so numerous in some districts that the proper cleaning and disinfection of the building has been seriously impeded, and the council of hygiene of the department of the Seine has issued an order asking the prefects in the interests of school hygiene to refuse to authorise the use of school buildings for any outside purpose

Correspondence.

"Audi alteram partem."

THE OUTLOOK IN DENTISTRY.

To the Editor of THE LANCET.

SIR,—In your leading article of June 5th on the outlook in medicine and dentistry it is stated that "Even if they devoted their whole time to school work the existing dentists could not cope with the needs of the 5,750,000 school children while neglecting the rest of the population." Instead of the figure given, evidently elementary school children, let us take the number of children in England and Wales alone between 4 and 14 years of age, roughly 7,000,000, almost one-fifth of the entire population; and suppose we have started clinics with all our 5000 dentists full-time, having obtained the consent of all the parents to full treatment; deduct 3 per cent.—i.e., 210,000—as having naturally perfect teeth, leaving 6,790,000 to be treated, which gives 1358 children to each dentist, or, after allowing for administration and inspection, 1500 each. As there would neither be part treatment nor casual cases, this number could, without undue fatigue, be made dentally perfect—that is, every saveable tooth filled or otherwise treated, and every unsaveable tooth removed within one year, after which 700 dentists, or one to every 10,000 children, could keep them in that state, inclusive of treating those entering each year; while the remaining 4300 dentists could tackle the children of Scotland and Ireland and then the adults of the United Kingdom in sections of 10 years of age, leaving behind in each section one dentist to each 10,000, or for the 46,000,000 in the United Kingdom 4600 dentists. This is the ideal.

The real is, that if we appointed 5000 dentists for this purpose 4300 would have to "kick their heels," excepting only those in areas in which a dental clinic has been in existence for some years, where this system might be tried with advantage, forming training schools for those entering the school service, thus giving six months to a year of intensive training, which could not be got elsewhere, before taking charge of a clinic, at present some are started on wrong methods, which require subsequent strenuous labour to right, such training would obviate this. Where no dental clinic exists the great majority of the parents object to dental treatment for their children, except for the relief of pain, and, anything in the nature of compulsion, until the great majority are converted, would lead to active antagonism.

At the present time not more than 1000 dentists, inclusive of inspectors and teachers, could find sufficient work to keep themselves busy, and that number would be ample to eradicate dental disease to the extent of 90 per cent. or so within the next ten years; but these men must be not only qualified but must be men of experience in the first instance, capable of giving sound training to younger men, and the work must be of the best and most enduring quality, so as to reduce to a minimum the need for subsequent treatment throughout the child's life, otherwise the whole system will be a fiasco. Needless to say, a sufficient number of such men cannot be got for anything like £350 or £400, so often offered; but, given prospects equal to what obtains in other lines of life, a plentiful supply is at hand, which would be readily augmented by the time that a full system could be inaugurated, once it were known that the remuneration would be in proportion to the expense and study involved.

In your report of the President's address to the General Medical Council (p. 1235) the increased number of dental students in 1919—viz., 612—is given as a hopeful sign; during the years 1912–15 inclusive 1208 were registered, for the years 1916–19 inclusive 1074, a considerable fall, indicating also that the number for 1919 is mainly made up of some of those who delayed their course on account of the war, while it also includes assisted ex-service men. No parent knowing the facts will dream of wasting his money, or his son's brain-power, in such a line, unless he has sufficient capital to enable him to cater only for the wealthy—a class of man we do not desire to enter the profession, otherwise the prospects in private practice for the young man are well-nigh hopeless, "tied hand and foot," wearily waiting for merit to tell, while the unskilled canvass and advertise all around him, using titles indistinguishable from, but often more high sounding than, his, an unjust competition which does not affect the long-established man to any great extent. The scarcity is not yet really serious, but is accentuated by faulty distribution, want of organisation, the wastage of skilled energy in the production of beautiful, though often unnecessary and vulgarly placed, specimens of the goldsmith's art, and time lost in ultra-conservative treatment, where radical treatment would in many cases prove to be the more conservative in the long run. If 44,522 medical men are sufficient, after allowing for faulty distribution, for the rest of the body, surely 5455 dentists are not far short of what should be required for the teeth alone.

This scarcity of dentists scare is being pushed for all it is worth by those who wish to be put on the Register, "with all the legal rights, privileges, and status, as are conferred by the Dentists Act, 1878, upon dentists," because they find that the competition of the steadily increasing number of persons practising like themselves, to which is added the steady awakening of the public to the difference between a dental surgeon and the keeper of a "dental surgery," is becoming too great. They hope to get the status, &c., that the Government will join with them in this fraud on the public, and once safely in, to slam the door upon anyone who cannot prove himself to have been for five years at least "an uneducated, untrained person, practising as a dentist, performing surgical operations on the teeth and jaws, doing untold damage and casting undeserved odium and dishonour on a scientific profession"—vide report on the Dentists Act. I blush for the members of our profession who agree to have them on our Register, as medical men would had any of their members proposed to put all the venereal and other quacks on their Register, on the strength of vested interests. It is a most vicious precedent.

As a school dentist I trust that something will speedily be done to protect those children now leaving school with perfectly healthy mouths, mainly due to clinic treatment, from such men, many of whom are utterly unscrupulous, one of their favourite tricks being to advise wholesale extractions for tartar-coated teeth.

I am, Sir, yours faithfully,
A. SHERWOOD ANDERSON,
Northampton, June 15th, 1920. *School Dental Officer.*

RESEARCHES ON THE TREATMENT OF BENIGN TERTIAN FEVER.

To the Editor of THE LANCET.

SIR,—I read with the greatest possible interest and with considerable profit the valuable contribution of Major H. W. Acton, I.M.S., on this subject published in your issue of June 12th. It contains much solid and practically useful information regarding the alkaloids of the cinchona plant. Indeed, one looks upon this paper and another issued by Major P. M. Rennie, I.M.S., both records of the work done in the Dagshai Malaria Depôt for British Troops, as among the most useful documents on the treatment of malarial fevers by quinine and its alkaloids that have been published. Having had something to do with the establishment of the malaria depôt at Dagshai I watched the work carried on in it with exceptional interest. I am in a position to vouch for the accuracy of the details of the work of the first series of cases published by Major Rennie, and am also satisfied that those of the second series now under reference are *pro tanto* absolutely reliable. Major Acton's work was on similar lines to the admirably worked out and complete series of observations made by Professor J. W. W. Stephens and his collaborators and published in the *Annals of Tropical Medicine and Parasitology*, 1919.

There are a few points in Major Acton's paper with which I do not find myself altogether in agreement, and to which, with your permission, I will take the liberty of alluding. Major Acton has admitted that some of his *opinions are opposed to long standing beliefs regarding the effects of quinine in malarial infection in India*

1 His recent work leads him to conclude that the malignant tertian parasite is more amenable to complete eradication under the curative use of the salts of the quinine alkaloid of cinchona bark than the benign tertian parasite The reverse has been the opinion always held in India In his paper he admits that he only dealt with 15 cases of malignant tertian infection, and I know from my own notes that there was only one case of malignant tertian infection in the first series—that is, Major Rennie's—which dealt with the Dagshai cases up to Sept 30th, 1918 I do not include the diagnoses made regarding the cases on the plains anterior to their being sent to Dagshai, as I am of opinion that these latter diagnoses should not be included by Major Acton, who, I take the liberty of remarking, would be on safer ground if his deductions were based on observations actually made by himself and his colleagues *If this view is accepted then one is disposed to consider that the number of malignant tertian infections dealt with by him and his collaborators is scarcely sufficient to justify a definite conclusion as to the relative curability of this type of malaria by quinine as compared with the effects of quinine in benign tertian infection* I would suggest that a much more extensive series of observations of the same kind on malignant tertian infection are necessary before arriving at any positive conclusions as to its curability compared with other types of malaria by quinine salts I fully admit that Major Acton has made out a strong case in support of his statement that quinine acts as a steriliser of the blood in connexion with *Laverania malariæ* infection—that it has a more decidedly specific action on this parasite than on the other two, and he has brought forward a series of facts not easy to refute

2 My own experience in India and Burma, which goes over 28 years and includes something in the neighbourhood of 200,000 cases of malarial infection, indicates that benign tertian infection forms probably over 75 per cent of the malarial infections met with, and not 50 per cent, as stated by Major Acton My observations were carried out almost all over India This is the general average for an entire year The ratio of benign tertian and malignant tertian infections in many parts of India varies with the period of the year, the percentage of malignant increasing and that of benign tertian decreasing during the autumn This is specially brought out in the malaria of our extensive N W F Provinces I do not believe this difference to be due to raised atmospheric temperature, as appears to be the case in temperate climates, it is I submit, owing to some undiscovered *factor in connexion* with the life history of malaria bearing *anopheles One has investigated malaria at all periods of the year in India, Burma, and Mesopotamia,* and knows that it is *necessary to continue observations for* a whole year before anything like a true *record of the ratios* as to the types of malarial infection is to be obtained for each locality, district, or cantonment

3 The difficulty of completely eradicating *Plasmodium vivax* from the blood appears to be proved by the work done in the Dagshai Malaria Depôt, this was also well brought out by Professor J W W Stephens and his co workers during the great war, and should cause many to revise their opinion as to the innocence of this type of malarial infection I have long been of opinion that benign tertian malaria is a much more important type of infection in India, both as regards direct and indirect mortality and the extent of morbidity it gives rise to, than malignant tertian infection One published many statements to this effect years ago The following is abstracted from "Prevention of Malaria in India," 1911, p 100 —

> The vast majority of the cases of malaria in India consists of simple tertian which is considered by most authorities to be the easiest *form* of malarial infection to eradicate *from a* locality and from infected *persons This does not correspond altogether* with the experience of many experts in India Notwithstanding statements to the contrary the largest number of relapses occurs in cases of simple tertian fever During the last ten years one has had opportunities of watching and following relapses in localities where there *is no initial malaria and 79 per cent of* these were simple tertians, over 20 per cent malignant tertians and only a small fraction quartans The generally accepted statement also that perniciousness is confined to malignant tertian is opposed to one's experience as one has seen such conditions as algid paroxysms *choleraic attacks cerebral attacks* and even hyperpyrexial phenomena associated with simple tertian infection whilst a fair proportion of cases of repeated simple tertian relapses or reinfections end in malarial cachexia In discussing the subject with medical men of wide knowledge of Indian malaria it has been ascertained that one's experience in this respect is not exceptional

4 I am *not altogether* satisfied that *an* incontestible case has been made out by Major Acton *for* the exclusive use of the combined cinchona *alkaloids* (we used to call them the *mixed alkaloids* 30 odd years *ago*) in benign tertian infection, but he has shown rather forcibly that they should be subjected to a further extensive trial carried out on scientific lines They were very largely used in the out patient department of the Medical College Hospital Calcutta, a *generation ago, where we had about 100 cases of malarial infection attending every morning, and one remembers that a fair proportion of these cases rejected their dose shortly* after swallowing it The use of tablets of the mixed alkaloids as suggested by Major Acton, would probably to some extent remove this disadvantage

Two sections of the paper under reference—The Effect of the Total Alkaloids of Cinchona Bark on Benign Tertian Infections and Effect of the Cinchona Alkaloids on Benign Tertian Infections—are of profound interest They deal with an aspect of the therapeutic uses of the products of the cinchona bark regarding which we have been too long in ignorance, and they indicate the necessity of combining the work of a highly trained chemist with that of clinicians and parasitologists in medical institutions carrying out original researches on malaria in India It appears to me that the work which Major Acton has been doing in connexion with the mixed alkaloids might with great advantage be extended to inquiries regarding several of the individual alkaloids of cinchona bark

I was very pleased to notice that Major Acton considers that the microscope is not sufficiently employed in the diagnosis of malarial infections in India

It is specially gratifying to learn that Major Acton is now labouring at home endeavouring to give practical application to the excellent work he was doing at Dagshai —I am, Sir, yours faithfully,

P HEHIR,
London, June 14th 1920 Major General I M S (retired)

ABDOMINAL EMERGENCIES.

To the Editor of THE LANCET

SIR,—I beg to be excused for sending so belated a reply to Mr A G T. Fisher's criticism (April 17th) of my paper on Abdominal Emergencies published in THE LANCET of April 10th Several points struck me at once on reading it

1 He had evidently not read the cases carefully

2 He had missed the chief point of the paper—viz, a plea for an exact diagnosis, and the natural outcome of this, to act on the diagnosis made

3 The cases he mentions convey quite a different impression in his description than they do from reading my notes of them, in other words, he gives them the complexion he wishes them to have

4 His opinion appears to be based entirely on statistics he has been able to collect, and in no place does he lead me to suppose that he has had any personal experience in "civil" abdominal emergencies

5 *I feel that his remarks are, to say the least ungenerous when he applies such terms as "apparently" "gambler's throw," and "considered to be"* to what we considered at the time as definite diagnoses

Apart from this, perhaps I may be allowed to comment on his letter In ruptured duodenal ulcers he has apparently not seen a case such as we diagnosed No 15 to be, although they are by no means rare, and within a fortnight of writing the published paper I had another This was a patient, aged 25, admitted six hours after perforation He was diagnosed correctly in detail by the house surgeon and myself independently, he was operated on at once and the diagnosis confirmed, the ulcer presenting a minute perforation which was already closed *The fact, too, of Case 15 being perforated 36 hours seems to mean nothing to him, and* in his consideration of statistics he has overlooked the relative recovery rate, according to the interval between perforation and operation

From his criticism of Case 1, the appendix abscess which was left alone, two conclusions are obvious (1) in such cases the frequent passage of small quantities of mucus conveys nothing to him, and (2) he did not accept the diagnosis that the abscess was "pointing" in the upper part of the rectum, although this was verified within 24 hours

In reference to his criticism of Case 2 the female child with *pneumococcal peritonitis,* I should like to ask him what operation he thinks would be of any use in such a case If he is thinking of drainage, I should have thought that his experience as surgical specialist R A M C, would have taught him the futility of a drainage tube in a diffuse infection of the peritoneal cavity, where no large quantity of free fluid was present

Perhaps, too, it is permissible to remind him that the peritonitis in such cases is only one of the manifestations of the pneumococcal infection, and possibly the incision of the belly wall may be even harmful, as interfering in some measure with the respiratory movements.

Finally, may I recall to him my second concluding remark—viz.: "No hard-and-fast rules can be made; general principles ought to be laid down and followed, and special features of individual cases must be taken into consideration before a final decision as to treatment can be adopted."—I am, Sir, yours faithfully,

CHARLES F. M. SAINT,
Professor of Surgery, University of Cape Town.
May 20th, 1920.

GASTRO-ENTEROSTOMY: DIETETIC VALUE OF ALCOHOL.

To the Editor of THE LANCET.

SIR,—As a confirmed gastro-enterostomist of some years' standing I wish to express admiration for Mr. H. J. Paterson's lucid exposition, at a recent meeting of the Section of Surgery of the Royal Society of Medicine,[1] of the rationale of this operation; my personal experience is in accordance with that of Mr. Paterson as to the application and success of the procedure. Also I was deeply interested in reading Mr. A. J. Walton's dark roll of surgical iniquity, which I am sure will command profound study by all who are responsible for the efficient training of surgeons. At the same time I do not wish to infer that, although I happened to escape from inclusion in that roll, I have not had my share of compensatory, post-operative trouble, the principal one being a two-year plague of diffuse, dense iodine peritoneal adhesions, some of which caused intestinal obstruction, with three fatalities. The abandonment of iodine skin disinfection and return to old friends—alcohol mercurial lotion, and careful adjustment of isolating towels in and around parietal wounds by Mr. Marmaduke Sheild's through-and-through retractor silk sutures—relieved a situation which was really becoming intolerable.

It is not my desire to occupy space in reiteration of what I have already published on this subject further than to mention that my ideas on the operation of gastro-enterostomy are recorded in THE LANCET of Oct. 26th, 1912, and it is possible that the method therein described may now merit some attention. I think it a duty to repeat that in my opinion the employment of clamps in gastro-enterostomy violates the rudiments of operative surgery, in that they entail a needless traumatic insult to the delicate visceral structures, and a fatuous, if not culpable, obfuscation of potential hæmorrhage from many important vessels which must be injured in the course of the necessary incisions. I have no hesitation, judging from the number of fatalities which occur from post-operative hæmatemesis, in craving for the attention of surgeons to what I maintain is a preventable catastrophe—and, moreover, I consider it a disgrace to surgery and a parody on human reason that the term "hæmostatic through-and-through stitch" should ever have been countenanced in the surgery of the stomach. And I strongly recommend anyone who has not time or nerve openly to tackle the dozen or so bleeding vessels which usually demand ligature before the insertion of the inner circular catgut suture to transfer such cases to a colleague.

I am not of those who discount the importance of time,[2] yet I wish to emphasise that I am unable to follow the mentality that admits, in gastric surgery, of the repudiation of the cardinal rule—see the bleeding point and tie it. With all deference I beg of the authors of operative text-books to give this view some more reflection in the hope that they may see their way to delete some of the irons which now adorn their illustrations, and to bring a needle and thread into better perspective with an artery forceps and ligature well in the foreground.

There is another item which has for years baffled my sense of comprehension—the inordinate haste to get these patients out of bed and to introduce solid food into doubly lesioned stomachs. Apart from direct and peristaltic traumatism, apart from the very negation of Hilton's law, apart from the fact that it takes at least 14 days for *restitutio ad integrum* of any solution of continuity in the human body, the early administration of solid food is a physiological anachronism in that it induces the gastric glands to pour forth an abundance of acid secretion at the moment when the organ is extra-handicapped with an additional six-inch gastric sore, and when, by all the rules, an alkaline state is necessary for its salvation. Recently, I was gratified to read that Dr. T. G. Moorhead, of Dublin, had called attention to this matter, and I hope his opinions will exact the consideration which they always deserve.

It has been my plan for many years, a few days after operation, to hand over these cases to the sister's personal care, with the injunction that they shall be kept in bed and on a rigid milk diet (plus mist. carbonatis ter die) until the 28th day. Before discharge each one receives instructions as to what he should eat and drink during the ensuing year, and invariably some alcoholic stimulant is recommended at lunch and dinner.

It may not be reckoned irrelevant if I touch on the prophylactic treatment of this too prevalent malady, and in order to avoid prolixity or getting out of depth I will briefly mention "Ten Commandments!" which I have found of great service to candidates for gastric ulcer, who, perforce, have to lead a sedentary existence with comparatively little out-door exercise.

I. As a general rule, indulge only in two meals a day, and take only two plates to each meal—meat with vegetables, and fruit with or without light milk pudding, or cheese.

II. Masticate thoroughly, have rotten "stumps" extracted.

III. Take—in moderation—whatever alcoholic beverage is most congenial to your stomach—i.e., which does not, hours afterwards, create excessive acidity or a feeling of "liver."

IV. Whenever practicable, rest mind and body for one hour after a meat lunch in order to allow the digestive machine to get the wind up before an extra call for blood is made by brain or muscles.

V. Allow at least a six-hour interval between mid-day and evening meals.

VI. Do not pollute the refreshing cup of afternoon tea with bread and butter, cakes, scones, or other decomposing fermenting carbohydrate messes which deprive the unfortunate stomach of all chance of a rest before it has to tackle its dinner problem.

VII. Abjure the use of any form of alcoholic refreshment except at your lunch and dinner table.

VIII. Whenever *feasible take a stroll in the evening* after dinner, and sleep in a room with a large open window—not in a draught—so that the blood may be properly oxygenated during the eight hours of repose.

IX. Make it a creed to take regular morning exercise. Begin with a hard snap of shadow-boxing (commence with 20 and work gradually up to 100 double clouts) in order to extend the heart muscle and elastic tissue of the lungs. Follow with, e.g., Muller's eight physical exercises, then have a cold shower-bath, and promptly conclude with Muller's excellent towel drill before some open door or window.

X. "Dulce est desipere in loco"—but not too often.

I am aware that I tread on delicate ground in advocating the general moderate use of alcoholic drink with meals. In response to the "Hallelujah" cantations of ascetic mummers whose psychological diapason is solely comprised of one hyphenated falsetto—to eradicate an abuse it is necessary to lop off the use—I have no compunction in affirming that the rational dietetic use of the fermented juice of the grape, of the hop, and of some cereals is a "god-send" to man's digestion, and that while the indiscriminate use or bestial abuse of same unquestionably speeds down to the grave, universal total abstention would tend, in a comparatively short cycle of time, to depopulate the earth, and, in all probability, would compel whatever might remain with human form ultimately to seek refuge in the Simian freedom of an arboreal existence.

The die is cast—the test is now being applied on a large scale—may I beg my readers and their descendants carefully to note and compare, in the respective wet and dry zones, the future incidence of tuberculosis, cancer, lunacy, diabetes, resistance to infection, addiction to drug habit, and frequent and prolonged tours abroad for business, health, and pleasure purposes.

I am, Sir, yours faithfully,

JOHN O'CONOR, M.A., M.D. T.C.D.,
Senior Medical Officer, British Hospital, Buenos Aires.
April 14th, 1920.

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[1] THE LANCET, March 13th, 1920, p. 598.

[2] Operating to the Clock, Brit. Med. Jour., Dec. 21st, 1918.

THE PLACE OF NORMAL PSYCHOLOGY IN MEDICAL EDUCATION

To the Editor of THE LANCET

SIR,—In your issue of June 19th you publish a report of the Education Committee of the General Council of Medical Education and Registration, in which it is stated that the majority of the bodies consulted hold that "some instruction ' in normal psychology ' should be given by the lecturer in mental diseases as a prelude to his course ' I wish to protest very strongly against this proposed position of normal psychology in the medical curriculum Why should the functions of the normal human *mind* be taught at a period so remote from that at which the student receives instruction in the functions of the normal human *body*? A course on normal psychology should follow immediately on that of physiology, when the student has the facts of the structure and functions of the sense organs and central nervous system fresh in his mind Why should psychology stand in the unique position of having its normal and pathological aspects taught at the same time? Why should "psychological medicine receive different treatment in the medical curriculum from "somatic" medicine, surgery, or midwifery? As well might the pharmacologist be asked to give some lectures on botany and chemistry, the pathologist some lectures on physiology, chemistry, and anatomy, "as a prelude to his course " I am, Sir, yours faithfully,

Montagu square W June 20th 1920 CHARLES S MYERS

THE IMPORTANCE OF IMMEDIATE SELF DISINFECTION

To the Editor of THE LANCET

SIR,—Mr H Wansey Bayly's letter published in your last issue will have corrected the wrong impression that the digest of my speech in your previous issue would convey with regard to my remarks about disinfectant centres No doubt if all those who indulged in promiscuous sexual intercourse could be induced, whatever the weather and the circumstances, to hurry to a disinfectant centre, provided there was one handy, and were there treated by a skilled attendant within one hour of the connexion, many venereal infections would be prevented But the provision of a sufficient number of these centres bristles with difficulties In order to comply with the time limit, which is the vital essence of disinfection, they would have to be so numerously provided as to make an adequate provision prohibitive There remains the danger of espionage and blackmail, which in rural districts would be very real

But leaving speculation on one side, the fact remains that the number of disinfectant centres already provided is negligible, while venereal infection is proceeding For this reason the S P V D is determined to push forward its policy of instruction in the methods of immediate self disinfection rather than wait for the universal establishment of disinfectant centres, where at its best the disinfection would be delayed

I am, Sir, yours faithfully,

June 20th 1920 WILLOUGHBY DE BROKE

THE STANDARDISATION OF COLOUR PERCEPTION

To the Editor of THE LANCET

SIR,—A certain amount of dogmatism is not only condoned, but is even desirable, in a student's text book I admit, however, that the statements quoted by Dr Edridge Green from the second edition of my "Diseases of the Eye" are open to serious criticism They have been modified as follows in the third edition —

> Only those of large experience will gather any useful information from the names given by the subject to various colours for these are named chiefly by reference to their various brightnesses and the answers appear to be quite inconsistent In testing for danger only it is obvious that the names given to the colours are of value for if a man repeatedly calls red green or vice versâ he is clearly unsuited to be an engine-driver or look-out man on a ship Holmgren s wools have been much criticised but if the tests are properly carried out gross defects of colour vision are easily recognised and an expert will be put on his guard in almost every case of even minor defect

But is Dr Edridge Green so opposed to Holmgren's test as his statement that it is "obsolete" would imply? Surely his classification test, which still figures in his latest book, is a direct descendant of the Holmgren test, just as his lantern is a modification—and great improvement—on previous lanterns which had been used for the detection of colour blindness, his bead test a modification of Sir Wm Abney s bead test, and his card test a modification of Stilling s test Of course, the application of a new principle to old tests gives those tests an entirely new meaning The crux of the situation is whether the principle can be substantiated In other words, if the scientific evidence is against Dr Edridge Green's theories the whole of the rest of the discussion *is beating about the bush*

Dr Edridge Green s remark that I am now using his methods is characteristic of his mode of controversy If to use a lantern for testing colour vision is using his method, then Holmgren and Donders used his method before he began to write on the subject But just as I use Nagel s, and Stilling s, and Abney s methods, so I am perfectly prepared to use Dr Edridge Green s or anyone else's if they appear to me to help in the elucidation of a very difficult problem

I am, Sir, yours faithfully

J HERBERT PARSONS

Queen Anne street Cavendish square W June 19th 1920

To the Editor of THE LANCET

SIR,—The papers referred to by Mr Parsons in the Proceedings of the Royal Society, 1910, can be read by anyone, who can then judge for himself whether the point raised by Lord Rayleigh and supported by Dr William Watson was "conclusively proved ' I am inclined to think that here few would agree with Mr Parsons Dr Edridge Green read his paper on the theory of vision at the International Medical Congress at Budapest in 1909 This was read, by request, in two sections, the ophthalmological and the physiological There was not a word of adverse criticism in either section, but the strongest approval Professor von Tschermak, professor of physiology in Vienna and one of the leading authorities on vision, subsequently wrote to THE LANCET (Oct 30th, 1909) strongly supporting the theory I am, Sir, yours faithfully,

Wimpole street W June 21st 1920 PERCY DUNN

THE RÔLE OF REPRESSION IN THE WAR NEUROSES

To the Editor of THE LANCET

SIR,—With all deference to so eminent an authority as Sir James Crichton Browne, his remarks (THE LANCET, June 12th, p 1296) on what he terms the "anti repression method" of dealing with the war neuroses are not in accord with the actual experiences of many psychotherapists On the contrary, the more one sees of these cases the more one is convinced that amidst the mass of bewildering theories advanced the importance of repression in the production and maintenance of symptoms becomes daily more evident

Psychotherapists will probably agree with Sir James Crichton Browne's statement of the concept of repression in the paper referred to but when he states that patients are told to "keep their miseries ever before them" it may well be asked Whose teaching this is? It is certainly not that of Dr W H R Rivers who cites, only to condemn, the case of an officer with a tendency to dwell overmuch on his war memories

It is a matter of actual experience that in a majority of the genuine war cases admitted even at this period to neurological hospitals, the patient on being interrogated states that his aim is to banish the war from his memory, if he hears it discussed he leaves the room He says that nothing would induce him to attend such a function as a soldiers' reunion in his town where he would meet with his old comrades In short, he is vigorously repressing his war memories He almost invariably complains of dreaming about the very events he puts out of his mind in the day time, and this is corroborated by the night staff and by other patients who hear the words shouted in the nightmare

There is a common misapprehension on the part of those interested in these cases as to the attitude of the psychotherapist towards repression He wishes the war to be forgotten as much as does the patient, but the difference is in the method best calculated to attain this end. If a farcical and, perhaps, absurd analogy, which nevertheless appeals to patients, may be allowed, their attitude towards their war experiences is that of a young child who has been told by a foolish nurse that a jack-in-the-box contains a bogey-man with power to jump out and hurt him if he is troublesome. If left alone with this and his toys—and it has to be imagined that the hook which keeps the lid of the box down is broken—the child, afraid of the bogey's eruption, keeps the lid down by the force of his hand. All goes more or less well until fatigue and drowsiness supervene, whereon the hand drops off, the doll jumps out, and the child is terror-struck. (It is significant how many patients tell one they wake with a start, sweating and palpitating, just as sleep overtakes them with its suspension of the power of the will to act as censor.)

Will it be said that in such a case it would be at "variance with common sense" to take the child to the dreaded box, to open it and to show him that the awesome bogey is only a harmless doll, and are not war memories equally harmless, if he will only realise it, to a patient safely back in England? The child, once realising the innocuous nature of his bugbear, forgets it as soon as a new toy is given him, not because he wishes to drive it from his memory, but simply because it takes its proper place in his scheme of things, and has no particular emotional tone associated with it. So with the war neurotic; one aims at enabling him to forget his experiences by their taking their rightful place as memories admittedly terrible, but not worth running away from, and powerless to hurt him. There is indubitable evidence that when repression is genuinely overcome, the battle-dreams diminish, the patient sleeps better and soon begins to mend.

My reason for trespassing on your space is that, unfortunately, the advice invariably given to these patients is to forget the war and all about it, no doubt excellent advice if it worked. The fact that 20 months after the armistice and perhaps three, four, or even five years after the breakdown the men are still uncured shows sufficiently that it does not work.

I am, Sir, yours faithfully,
R. L. GAMLEN.
Brinnington Neurological Hospital, Stockport, June 15th, 1920.

THE SURGICAL TREATMENT OF PROLAPSE OF THE UTERUS AND VAGINA.

To the Editor of THE LANCET.

SIR,—I have read Dr. Blair Bell's letter. I regret very much his invective, which I do not answer. The aim of my first letter was to further science; Dr. Blair Bell's present letter adds nothing to the subject. I have neither the time nor the inclination to exchange vituperation; but this does not imply that I have received any reason to alter my views.

I am, Sir, yours faithfully,
Rugby, June 19th, 1920. R. H. PARAMORE.

THE CHEMO-THERAPEUTICS OF QUININE.

To the Editor of THE LANCET.

SIR,—The recent publication of Major H. W. Acton, I.M.S., which appeared in THE LANCET of June 12th, marks an important progress in the chemo-therapeutics of quinine. His observations that whilst the lævo-rotatory alkaloid quinine is a specific for the malignant tertian parasite its dextrorotatory isomeride quinidin is the best alkaloid for the benign tertian parasite deserve the greatest attention of those engaged in the treatment of malaria, since they open a new field for research on those lines.

In view of the importance of these observations I hope I may be permitted to describe a few chemical experiments which I was unfortunately unable to complete prior to my being demobilised from the army. These observations may be of some use to others.

(1) If a 10 per cent. solution of quinine sulphate is heated for one to two hours the solution turns dark. Its specific rotation falls from – 164° to – 43°. This depression of the rotation is probably due to the formation of quintoxin, as can be shown by the test described by v. Miller and Rhode. for this substance (*Berichte der deutschen chemischen Gesellschaft*, 1895, vol. xxviii., pp. 1058; 1900, vol. xxxiii., pp. 3223; compare also Scholz, *Berichte der deutschen pharmacologischen Gesellschaft*, 1908, vol. xviii., pp. 44).

(2) If, however, a 10 per cent. solution of quinine is heated for the same length of time and hydrogen or carbon dioxide is passed through the boiling solution all the time, the rotation alters from – 164° to + 58°. The solution does not alter in colour and is free from quintoxin.

I am inclined to think that by the second method quinine becomes partially isomerised to quinidin. This will be difficult to prove chemically, but it seems to me that it might, perhaps, be advisable to try such a method of "activating" quinine, since it is possible that it might possess the therapeutical advantages indicated by the observations made by Major Acton.

I am, Sir, yours faithfully,
M. NIERENSTEIN, D.Sc., Ph.D.,
Lecturer in Bio-chemistry.
University of Bristol, June 15th, 1920.

THE POSITION OF VETERINARY SCIENCE.

To the Editor of THE LANCET.

SIR,—I am sure that those who are really interested in the progress of veterinary science will be very grateful for the exceedingly sane leader in your issue of June 19th, which is in pleasant contrast to the semi-hysterical and partly erroneous lucubrations that have recently appeared in the daily press. There is, however, one omission to which I should like to draw your attention. You do not state that the University of Edinburgh confers the degrees of B.Sc. and D.Sc. in veterinary science. The ordinance under which these degrees are conferred came into operation in 1911, and the number of students taking the necessary additional courses of instruction now forms a considerable percentage of the Edinburgh veterinary students.

I might add, also, that the Royal College of Veterinary Surgeons has recently instituted a diploma in veterinary State medicine (D.V.S.M.), the first examination for which is to be held in Edinburgh during next week.

I am, Sir, yours faithfully,
O. CHARNOCK BRADLEY,
Principal, Royal (Dick) Veterinary College, Edinburgh.
June 19th, 1920.

INFANT INTOLERANCE TO COW'S MILK.

To the Editor of THE LANCET.

SIR,—The note from the Paris Correspondent of THE LANCET in your issue of June 12th on anaphylactic vomiting in an infant reminds me of a case of infant intolerance to cow's milk which was under my care. This child was born on Jan. 31st, 1913. He was breast-fed from birth. During the third month an attempt was made to begin feeding him with diluted sterilised cow's milk, prepared under my supervision. Within a few minutes he vomited the feed and came out in a profuse urticarial rash. The gastric disturbance lasted for a good many hours. The same thing happened with diluted pasteurised cow's milk from another dairy, which was tried a few days later, and a third attempt in July was no more successful. Cow's milk of varying strengths, including solutions of dried milk, was tried from time to time during the summer, but every attempt produced vomiting, rash, and gastric upset. In August we tried goat's milk with complete success, and for the next month the child had breast feeds and goat's milk—half of each. On Sept. 14th, 1913, he was weaned and was fed wholly on goat's milk until March 1st, 1914, when for the first time he began to tolerate diluted cow's milk in very small quantities. The amount of the cow's milk was gradually increased, and at the end of a month he could take undiluted cow's milk without any ill-effect. Thenceforward there was never any intolerance to cow's milk. It appears that a maternal aunt of this child was brought up on goat's milk "because she couldn't digest cow's milk"; there is no other relevant family history.

I am, Sir, yours faithfully,
London, June 19th, 1920. M.B., B.CH.

SOCIETY FOR THE PREVENTION OF VENEREAL DISEASE.—We have received a letter from Mr. Wansey Bayly, honorary secretary of this society, in which he states that the Executive Committee of the Society, at its last meeting, resolved that notice should be sent to all the medical members of the Executive, Medical, and Propaganda Committees of the National Council for Combating Venereal Diseases, and to the medical press, announcing the resignation from the National Council of Dr. Rayner D. Batten, Mr. E. T. Burke, Sir Bryan Donkin, Sir Frederick Mott, Sir Humphry Rolleston, and Dr. J. H. Sequeira.

Medical News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND —As the result of the Final Fellowship Examination held from May 13th to 26th, for which 106 candidates presented themselves, 38 candidates were approved, including one woman The Council accordingly, at its meeting on June 10th, conferred the diploma of Fellow on these candidates also upon one candidate (Mr W E L Clark) who had previously passed the requisite examinations, and has now attained the age of 25 years The following are the names and medical schools of the successful candidates —

James Wilmot Adams St Bart s Hosp August Lyle Buchanan Sydney Univ and London Hosp Neil Canthe Aberdeen Univ and Charing Cross Hosp Wilfrid Edward Le Gros Clark St Thomas s Hosp John Henry Cobb Sheffield Univ and Middlesex Hosp Harold Robert Dew Melbourne Univ and London Hosp Sidney Forsdike Univ Coll Hosp Robert Fowler Melbourne Univ and London Hosp John Frederic Gill Aberdeen Univ and London Hosp John Gilmour Durham Univ and London Hosp John Richard Griffith Cambridge Univ and St Bart s Hosp George Gushue-Taylor London Hosp Ranald Montagu Handfield-Jones St Mary s Hosp James Norman Jackson Hartley Edinburgh Univ Lionel George Higgins Cambridge Univ and St Thomas s Hosp Arthur Norman Hooper Cambridge and Birmingham Univs and Middlesex Hosp John Basil Hume St Bart s Hosp Jack Joffe Guy s Hosp Robert Andrew Kerr Belfast and London Hosp Muriel Elsie Landau Royal Free Hosp Kenneth Holl McMillan St Thomas s Hosp Francis Courteney Mason Middlesex Hosp Abdel Wahhab Mooro Cairo and St Bart s Hosp Thomas Paterson Noble Edinburgh Univ and London Hosp William Heneage Ogilvie Oxford Univ and Guy s Hosp Alan Cecil Perry London Hosp Leslie Norman Reece St Thomas s Hosp Cedric Sydney Lane Roberts Guy s Hosp Thomas Lewis Lindsay Sandes Dublin Univ , Bernard Sangster Simmonds Middlesex and St Bart s Hosps Neil Frederick Sinclair London Hosp Clive Nigel Smith Sydney Univ and Middlesex Hosp William Edward Mandall Wardill Durham and London Hosp William Turner Warwick and Maurice Henry Whiting Cambridge Univ and Middlesex Hosp John Whittingdale Cambridge Univ and St Bart s Hosp Nathan Judah Wigram Sheffield Univ and Lond Hosp Frederick Arnold Williamson Cambridge Univ and St Mary s Hosp and Henry Wardel Snarey Wright University Coll Hosp

Licences in Dental Surgery were also conferred upon the following 21 candidates who have passed the requisite examinations and have complied with the by laws —

W S Beauchamp London Evelyn Olive Betts National Dental H F Buchan Bristol H J Cavanagh National Dental R L Close Royal Dental A R Cox and D M Desai Guy s G A N Dod and H R Evans Royal Dental G H Froggatt Sheffield N Gerson Guy s R B Gibson Sheffield J R Humphreys Liverpool Margherita Maria Loretz Univ Coll C A Marais Guy s M Miliaressis Royal Dental T W Mitchell National Dental W H L Phillips Birmingham A E Poole Sheffield and Royal Dental A F Rees National Dental and G W Wilson Royal Dental

ROYAL COLLEGE OF PHYSICIANS OF IRELAND —The following have been admitted as Licentiates and Members of the College Robert Marshall, M B B Ch Q U Belfast, Uma Prasanna Basu M B Calcutta

UNIVERSITY OF LONDON, UNIVERSITY COLLEGE — There will be an assembly of the College Faculties on Friday next July 2nd at 2 30 P M when the American Ambassador, Mr John W Davis will receive the newly elected Fellows the scholars medallists, and prizemen and will address the assembly Graduates and undergraduates are requested to wear academic costume Later there will be an installation by the Ambassador of the collection of books on American History and Institutions presented by the Carnegie Endowment for International Peace and a concert by the students The college libraries museums and laboratories will be open to inspection

PROVISION OF EXPERT MEDICAL AND SURGICAL SERVICES —A paper read before the Society of Medical Officers of Health on May 28th by Dr A H Bygott county medical officer for West Suffolk dwelt on the provision of expert medical and surgical services from the point of view of the medical officer of health Dr Bygott emphasised the need of improved organisation of medical services and of the facilities for in patient and out patient institutional treatment throughout the country, as both the medical profession and the public were dissatisfied with the present state of things He drew attention to what he considered the unsatisfactory conditions of the present hospital system based on charity rather than on the conception of the hospital as the centre of the medical life of the area He deplored also the ignorance of the general public with regard to the incidence of diseases and the lack of opportunity for the general practitioner to consult with specialists Dr Bygott sketched out a scheme for improved organisation in these directions, which included suggestions for the better utilisation of the services of the members of the junior staff of the teaching school hospitals

SEAMEN'S HOSPITAL SOCIETY.—On Monday next, June 28th, at 2 P M , Sir Leonard Rogers is giving a lecture at the London School of Tropical Medicine Endsleigh Gardens N W on Leprosy On July 14th, at the same hour and place Colonel S P James will lecture on the Prevention of Malaria, and members of the medical profession will be welcome on both occasions

MEDICAL OFFICERS OF SCHOOLS ASSOCIATION — A meeting of this association will be held at 11 Chandos street Cavendish square W , on Monday next, June 28th at 5 15 P M when Mr R W Tustin, late Chairman of the Milk Committee of the Canadian Food Control Board, will give a lecture on Milk supply illustrated by the kinematograph and lantern slides All interested in the subject are invited to be present

SERBIAN RED CROSS SOCIETY IN GREAT BRITAIN — Under the special patronage of Queen Alexandra a concert will be given to commemorate Kossovo Day, and in aid of the Serbian Red Cross Society at the Mansion House London, on Monday next, June 28th, at 3 o clock The Lord Mayor of London will preside Admission is by invitation tickets to be obtained from the Secretary Serbian Red Cross Society 8 Queen s Gate place London S W 7

THE LEAGUE OF REMEMBRANCE (1914–1919) — This league is described as a beneficial circle to help the wives and dependents of fallen or incapacitated officers the hospitals and the children The opening ceremony of the new premises at 1 Marlborough Gate London W , will take place on June 28th, at 2 15 P M when H R H Princess Beatrice will declare the buildings open and the Bishop of London will hold a short dedication service

ROYAL MEDICAL BENEVOLENT FUND GUILD —An evening concert in aid of this guild will be held at Wigmore Hall, Wigmore street London W 1 on Friday July 2nd at 8 P M The following artists will assist Miss Olive Sturgess Miss Phyllis Lett Mr Lloyd Chandos Mr R E Miles Miss Elsa Stamford Miss Gertrude Tomalin, and Mr Ernest Busby Tickets (tax included) 21*s* , 12*s* 5*s* 9*d* and 3*s* may be obtained from Miss M Ellis Rowell, 49 Beaumont street, London W 1 and Box Office Wigmore Hall

TUBERCULOSIS SOCIETY OF GREAT BRITAIN AND IRELAND —A general meeting of this society will be held at Cardiff to day, Saturday, June 26th at 2 P M in the Council Chamber, City Hall Papers will be read by among others Dr J Brownlee and Dr H de Carle Woodcock, President of the society There will be a dinner in the evening at which the English members attending will be guests An excursion to Talgarth Sanatorium Breconshire has been arranged for Sunday

POST GRADUATE COURSE IN DISEASES OF THE HEART —A post graduate course will be held at the National Hospital for Diseases of the Heart, from Monday, July 19th to Saturday July 31st Practical instruction will be given in the use of the polygraph, electrocardiograph and other instruments and systematic and clinical instruction in the wards and the out patient department Applications should be addressed to the Secretary, National Hospital for Diseases of the Heart Westmoreland street, W 1

LONDON ASSOCIATION OF THE MEDICAL WOMEN S FEDERATION —A meeting of this association was held on June 15th at 11 Chandos street W Dr Emily Flemming the President in the chair Dr Janet Campbell read a paper on 'The Ministry of Health She first briefly outlined the history of public health legislation from the beginning of the reign of Queen Victoria and then discussed the reasons for the establishment of a central health department The general functions and duties of the Ministry were described with particular reference to the medical organisation of the health services A discussion followed in which Dr Mina Dobbie Dr Mary Jevons Dr T Johnston Dr Helen Boyle Dr Ethel Iredell Dr Amy Sheppard and others took part

A SINGLE EXAMINATION FOR GOVERNMENT MEDICAL SERVICE —At a meeting of the Conference of Delegates of the Metropolitan Medical Schools held on March 11th, the following resolution was passed —

> That application be made to the Government requesting that a single examination be instituted for admission to the Medical Services of all Government Departments and that this examination be held at regular intervals

The individual medical schools were invited to consider this question and at a meeting of the Conference held on June 2nd it was resolved that the proposal be approved in principle and that the departments concerned be informed and asked to communicate the details of any arrangements which might be formulated if it were decided to institute a single examination Mr A E Webb-Johnson, honorary secretary to the Conference of Delegates informs us that a letter conveying the above has now been sent to the Government Departments concerned

LITERARY INTELLIGENCE.—The Cambridge University Press announce for immediate publication "Industrial Colonies and Village Settlements for the Consumptive," by Sir German Sims Woodhead and Mr. P. C. Varrier-Jones, the honorary medical officer of the Cambridge Tuberculosis Colony at Papworth, with a preface by Sir Clifford Allbutt.

GREAT NORTHERN CENTRAL HOSPITAL, HOLLOWAY-ROAD, LONDON.—The chairman, the Marquess of Northampton, will receive visitors in the board-room on View Day, Thursday, July 1st, at 3 P.M. The wards can be visited from 3 to 4.30 P.M.

THE FEDERATION OF MEDICAL AND ALLIED SOCIETIES.—At a meeting of the Gloucestershire branch of the British Medical Association held on June 17th the following resolution was carried unanimously:—

> "That it is the desire of the Gloucestershire branch that the British Medical Association agree to appoint accredited representatives of the Association to the Federation of Medical and Allied Societies."

THE Incorporated Society of Trained Masseuses and the Institute of Massage and Remedial Gymnastics have amalgamated, and under the Royal Charter, which has been granted, the amalgamation of the two societies will be styled The Chartered Society of Massage and Medical Gymnastics.

MINISTRY OF PENSIONS HOSPITAL, BATH.—The new department of psychotherapy, an enlargement of the orthopædic block of the Ministry of Pensions Hospital, Bath, of which Mr. E. W. Hey Groves is the surgical director, was opened on June 3rd by Sir Robert Jones.

VACCINATION DIFFICULTIES IN DEVONSHIRE.—At the last meeting of the Crediton (Devon) urban council allusion was made to the increasing number of applications for exemptions from vaccination, and it was suggested that they should be less easily obtainable. It was decided to request the Urban Councils' Association to consider the matter.

MEDICAL MAGISTRATES.—Mr. Reginald Whiteside Statham, M.R.C.S., L.S.A., of the Hall, Cheddar, has been placed on the commission of the peace for the county of Somerset.—Mr. Dudley Raymond Harris, L.R.C.P., M.R.C.S., has been placed on the commission of the peace for the borough of Dartmouth (Devon).

MEMORIAL TO A SOUTH AFRICAN MEDICAL MAN.—A tablet in the Parliament House, Capetown, in memory of Dr. R. A. Buntine, M.L.A., of Pietermaritzburg, Natal, who was drowned when the R.M.S. *Galway Castle* was torpedoed two years ago, was recently unveiled by General Smuts.

LISKEARD (CORNWALL) COTTAGE HOSPITAL.—The Cornwall branch of the Red Cross Society has offered £250 to the Liskeard Cottage Hospital towards the provision of a new children's ward, conditionally on the same amount being subscribed locally before Dec. 31st next. The committee decided to appoint collectors to try to raise £250, and after that has been obtained to make a public appeal for a sum sufficient to build and furnish a new children's ward.

THE SANITARY INSPECTION OF DARTMOUTH.—The Dartmouth town council recently advertised for a municipal officer as "borough surveyor, water engineer, and inspector of nuisances." The Ministry of Health remonstrated and stated that the town required a whole-time inspector of nuisances, adding that the sanitary conditions of the town were "below the normal." At the last meeting of the town council it was reported that there were 60 applicants for the post. Some of the members urged that it was impossible for one man to do the work and that they should reconsider the matter. Eventually it was decided to defer the subject to another meeting. Dartmouth, which has a population of about 7000, would certainly appear to require the undivided attention of a sanitary inspector, and it is to be hoped that the council will reconsider the appointment and follow the wishes of the Health Ministry.

ENHAM VILLAGE CENTRE.—A garden fête for the purpose of raising funds to extend the work of this centre for disabled ex-service men will be opened by the Duke of Connaught on Wednesday, June 30th, at 2.45 P.M., and by the Countess of Bective on Thursday, July 1st, at 2 P.M. It will be remembered that the estate comprises over 1000 acres and was purchased and equipped by voluntary contributions for treatment and training purposes. Its beautiful situation makes it an ideal place for providing small holdings and village industries for permanently disabled men. Conveyances will be available to and from Andover Junction on the days of the fête; admission will be 1*s*., and after 6 P.M. 6*d*. The programme includes a bazaar, pastoral play, morris dances, side shows, Punch and Judy show, dancing, tea and refreshments, military bands, and the E.V.C. orchestra in the grounds of Enham Place. It is hoped that a large attendance will be secured.

Mr. Roy Neville Craig, L.R.C.P. Lond., M.R.C.S., L.M.S.S.A., has been elected a member of the Torquay town council.

ROYAL MEDICAL BENEVOLENT FUND.—At the last meeting of the committee, held on June 8th, 13 cases were considered, and £138 voted to 10 of the applicants. The following is a summary of some of the cases relieved:—

Widow, aged 77, of M.D. Lond. who practised at Penzance and died in 1899. Has two daughters, aged 51 and 38; the elder attends to the home and the younger is an invalid. Income from leasehold property, £170 per annum, a large portion of which goes on repairs, £60 having been paid since March. The lease of two houses will fall through in four years. Rent, £17, and rates on one house, £26. Have had to sell one house during the last 12 months, to meet the expenses of dilapidations and repairs. High cost of living is making it impossible to make ends meet. Voted £18 in 12 instalments.—Daughter, aged 72, of L.S.A. Lond. who practised at Lambeth and died in 1884. In the past herself and invalid brother have managed to live on the proceeds of some property, but the leases all expired in June of this year. Their joint income has never exceeded more than £100 a year; consequently they have been unable to save, and their income will now practically cease. Voted £26 in 12 instalments.—Widow, aged 60, of M.R.C.S. Eng. who practised at Dover and died in 1916. Applicant was left with two daughters, now aged 19 and 18, who are students, and will not be able to earn for at least another year. Applicant has a position as housekeeper, and the daughters are allowed to live with her. Friends help with tuition fees, but practically all the applicant's earnings are taken to provide the balance. Relieved three times, £30. Voted £10.—Daughter, aged 63, of M.R.C.S. Eng. who practised at Long Sutton and died in 1877. Only income about £25 from investments. Has acted for many years as housekeeper to a gentleman, but he has died. At present she is looking after his sons, and receiving board and lodging for her services. Suffers from ill-health. Relieved five times, £60. Voted £12 in 12 instalments.—Daughter, aged 81, of M.R.C.S. Eng. who practised at Hackney and died in 1859. She suffers from ill-health, and is now losing the sight of one eye. She receives about £78 from friends and £30 from another charity. Relieved eight times, £111. Voted £20 in 12 instalments.—Daughter, aged 59, of M.R.C.S. Eng. who practised at St. Day and died in 1917. Daughter looked after her father until his death, and then found it difficult to commence to earn her living. Acts as organist at the church, and receives £14 a year, and about £6 by teaching music. Rent and rates £16 16*s*. Relieved three times, £36. Voted £18 in 12 instalments.

Subscriptions may be sent to the honorary treasurer, Sir Charters Symonds, K.B.E., C.B., F.R.C.S., at 11, Chandos-street, Cavendish-square, London, W.1.

POST-GRADUATE WORK IN PARIS.—An interesting programme of the second series of a holiday course of lectures, called "Improvement Course" for 1919-20, has just been published by the Medical Faculty of the University of Paris. The lectures, held in the Trousseau and Bichat lecture-rooms of the Hôtel Dieu Hospital, Place Notre Dame, begin on July 10th at 9 A.M., the entire course of 31 lectures being completed in two weeks, when a certificate will be given to each student. Four of these holiday lecture courses are held every year at the Hôtel Dieu, the two improvement courses (Cours de Perfectionnement) taking place at the Easter and summer vacations, and the other two, called Revision Courses, at the New Year and in October. The July course is under the direction of Professor Maurice Villaret, assisted by MM. Lardennois, Herscher, Lippmann, Chabrol, Francois Moutier, Henri Bénard, Saint-Girons, Paul Descomps, Deval, Guilleminot, Durey, and Dausset. The subject of the July programme is "Recent Ideas on the Diagnosis and Therapeutics of Diseases of the Digestive Apparatus," and the lectures are divided into four sections, entitled: (1) Investigation; (2) Symptoms; (3) Diseases; (4) Treatment. The lectures take place daily from 9 to 10 in the morning and from 2.30 to 5.30 in the afternoon. A detailed summary of each lecture is issued to the students, and the course includes illustrations, with plates and lantern slides, and inspection of patients, instruments, and microscopic preparations, while special stress is laid on clinical instructions and on recent processes of medical, surgical, physio- and hydro-therapeutics. The students obtain individual tuition in the clinical examination and handling of patients, in the working of apparatus, and in laboratory research on the cases dealt with, with permission to take away their results. A specially interesting part of the programme is the three-day study tour arranged for July 14th, 15th, and 16th under the direction of Professor Gilbert and Professor Maurice Villaret, when a visit will be paid to Vichy and the hydro-mineral resorts in Auvergne. No charge of any kind will be made for this trip, either for railway, meals, hotels, or motors. For admission to the course of lectures at the Hôtel Dieu a laboratory fee has been fixed at 150 francs, to be paid in advance at No. 3 window of the secretary's office in the Medical Faculty on Tuesdays, Thursdays, and Saturdays from 12 to 3 P.M. The general scheme of these lectures, which include two revision courses, one on the Effect of the War on Nerves, to be held in the New Year vacation, and the other on the Application of Laboratory Methods in Diagnosis, to be given in October, is rather broader than the usual post-graduate course, since the lectures are open to the matriculated students in the Faculty, as well as to all French and foreign doctors.

MINISTRY OF PENSIONS NURSING SERVICE—New rates of pay have been sanctioned for the Ministry of Pensions Nursing Service These rates are matrons £115 to £185, charge sisters, £75 to £85, nursing sisters, £60 to £65, assistant nurses £25 to £40 War service is counted towards increment in all ranks There are vacancies at present in the junior ranks, and application forms and further particulars may be obtained from the Matron in Chief, 14, Great Smith street, Westminster

THE LONDON AND COUNTIES MEDICAL PROTECTION SOCIETY, LTD—At the last meeting of the Council the following resolutions were unanimously passed —

1 In view of recent increases in charges incidental to litigation it is advisable that a corresponding increase should be made in the amount of the indemnity with regard thereto which may be granted to the members of the society in accordance with the terms and provisions of the Memorandum and Articles of Association

2 An indemnity up to the aggregate sum of £3000 in any one calendar year or such other sum as the Council may from time to time determine may be granted to members of the society on whose behalf litigation is undertaken or defended by the society in accordance with the terms and provisions of the Memorandum and Articles of Association

3 The cost of providing for the risk of the increased amount of indemnity by insurance or re insurance shall be charged against the society s Special Insurance Fund

DONATIONS AND BEQUESTS—The late Mr William Barwick Gregoe Colmore, of Cadogan place S W, has left by will £500 to the Cheltenham Hospital, £500 to the Birmingham General Hospital £200 each to the Queen's Hospital, Birmingham, the Birmingham General Dispensary, the General Institution for the Blind, Edgbaston, the Deaf and Dumb Institution, Edgbaston, the Children's Hospital, Birmingham, the Birmingham and Midland Eye Hospital, the Birmingham Orthopædic and Spinal Hospital and the Birmingham and Midland Counties Sanatorium £100 each to the Dental Hospital Birmingham, the Birmingham Lying in Charity, the Birmingham and Midland Homœopathic Hospital the Birmingham and Midland Counties Ear and Throat Hospital, the Birmingham and Midland Skin and Lock Hospital, and the Birmingham and Midland Hospital for Women

THE CORONERS' SOCIETY ANNUAL BANQUET—The annual meeting of the Coroners Society of England and Wales, held on June 10th was followed by a banquet at the Holborn Restaurant Mr Kelway Pope, coroner for Southampton, the newly elected President, proposed the loyal toasts after which Mr A M Forbes coroner for Middlesex, gave the toast of ' Imperial and Local Government," to which Major A Boyd Carpenter, M P, replied Mr Brooke Little who proposed the toast of 'The Coroners' Society," said the office of coroner was of very ancient origin It was known that coroners existed in 1194 and, according to some authorities, even earlier Coroners in early days had to be able to read and write and were elected by the popular vote The office was then unpaid, but in the time of Henry VII a sum of 13*s* 4*d* was paid to the coroner in all cases of murder and manslaughter out of the chattels of the accused, in the time of George II the payment of an increased fee for all inquests held upon view of dead bodies was ordained The object of the Coroners' Society was, said Mr Little, the protection of the rights and duties of coroners, and any recommendations by its members ought to carry weight At the present time there were over 30 outstanding enactments relating to coroners, which might well be included in one consolidating and amending Act Mr Pope having acknowledged the toast, Mr H R Oswald, coroner for the western district of London, proposed the toast of "Our Guests" Sir Edward Troup Permanent Under Secretary to the Home Office in reply, said that the Home Office hoped to deal with the question of coroner's juries as soon as possible The emergency legislation, giving the coroners power to dispense with juries held good for six months after the official termination of the war, and so long as the Turks procrastinated about making peace, so long, at least, would coroners be able to sit without juries He hoped it would be possible to deal generally with the jury question and other matters by way of legislation No complaints had been received from the general public regarding the holding of inquests without juries except in one case in which a coroner had returned a verdict of *felo-de se* Coroners generally appeared to like the discretionary powers entrusted to them Another question was whether a coroner should be a lawyer or a medical man He regarded it as a narrow view to confine the candidate for a coroner's office to two professions only During the next ten years at least he considered vacancies should be filled by men who had seen active service and he considered that coroners ought to be better paid In the higher ranks of the Home Office a war bonus was given, while the junior staff received 30 per cent increase in their pre war pay Sir Claud Schuster Permanent Secretary to the Lord Chancellor, also replied for the guests.

THE Academy of Medicine of Turin, in a recent private session, unanimously awarded the valuable Riberi prize to Dr Giuliano Vanghetti for his admirable researches on Amputations and Kinematic Prostheses These researches the Academy holds are destined enormously to relieve mutilations whether derived from war service or from the daily routine of labour The Academy further testifies that the work is the outcome of long and patient study, which has done great honour to Italian medical science

PROFESSIONAL CLASSES WAR RELIEF COUNCIL—The annual meeting of this council was held on June 9th Although some departments of this excellent work have been closed down, the Council is keeping on certain of its activities until next year at its new offices at 251, Brompton road, S W The report for 1919 shows that over £6000 was spent on education the average number of families per term receiving assistance being 150 The training of young people for the professions was continued New applications to the number of 566 were dealt with in the General Assistance Department The total sum disbursed in all departments was nearly £15 000

The Services.

ARMY MEDICAL SERVICE

Major and Bt Lieut Col R B Ainsworth to be temporary Assistant Director General vice Major (temp Lieut Col) A B Smallman

ROYAL ARMY MEDICAL CORPS

Temp Major E W Skinner relinquishes the acting rank of Lieutenant-Colonel

Major A B Smallman is seconded for service under the Ministry of Health

Capt L B Clarke and Temp Capt A E Atkinson to be acting Majors

Capts H G Trayer (granted rank of Major) and C H Brennan resign their commissions

Temp Lieut-Col J Godding (Colonel T F) relinquishes his temporary commission

Officers relinquishing their commissions —Temp Majors A M Leake (granted the rank of Lieutenant-Colonel) (Bt Lieut Col) F S Brereton (retains the Brevet rank of Lieutenant-Colonel) Temp Hon Major F P Nunneley (retains the honorary rank of Major) Temporary Captains granted the rank of Major J A G Burton J Cunningham Temporary Captains retaining the rank of Captain M S Bryce J D Kenyon W H Marshall C E Freeman H C E Quin G J Arnold W Scot T B A Haggard J Dickie C G H Campbell G S Woodman L V Gatt B T Saunders D P McDonald Temp Lieut W A Slack (retains the rank of Lieutenant)

SPECIAL RESERVE OF OFFICERS

Capt A Glen to be acting Major

Officers relinquishing their commissions —Captains granted the rank of Lieutenant-Colonel C J Rogerson E T Burke Captains granted rank of Major G V Stockdale Bt Major A Peters (who retains the Brevet rank of Major) C R McIntosh J G McCutcheon J Adams L S B Tasker Captains retaining the rank of Captain J Fraser R F Fagan E S Macphee W H Wood C Milne T Blackwood W Corner J W Maclean K J T Wilson P D H Chapman H M C Macaulay R V Clarke M A White J A H Miller T E Micklem J P White H S Baker J Crerar C W Armstrong T D Watt W F T Haultain A Winfield C R Knowles D B McIntosh H E McColl N McKillop D Macqueen L Handy P G Quinton G M Hetherington A D Gorman J R R Holmes J W Malcolm S Johnstone W Garde Browne I C Mackay J Charnley J W T Thomas W R Dickinson C G S Milne D F Hearn F R G Heif P N Cook J Adams B E Jerwood L Grey H Roger A B Hawkins S W Page R S Paterson N D Ball W G Woolrich, J G Lawn A H Morris G K Stone A I Meek R N Walker T P Lloyd F K MacMillan B L Slater G Gordon J D White G M Kendall M Stewart A L V Davin T P Chapman L J Vincent A M Dugan J H Shearer W S Dawson, J F Murphy, A C Perry

GENERAL RESERVE OF OFFICERS

H G Trayer late Captain R A M C to be Major

TERRITORIAL FORCE

Major T Kay to be Lieutenant-Colonel and to command 2nd Scottish Casualty Clearing Station

Capt F Darlow to be Lieutenant-Colonel and to command 2nd Northern Casualty Clearing Station

Capt T B Wolstenholme to be Lieutenant Colonel and to command 2nd Western Casualty Clearing Station

Major A E Jerman to be Lieutenant-Colonel and to command 4th London Field Ambulance

Major A A W Merrick to be Lieutenant-Colonel and to command 3rd West Lancs Field Ambulance

Capt P Moxey to be Major

Capt (acting Major) L T Challenor relinquishes the acting rank of Major on ceasing to be specially employed

Officers resigning their commissions Major J Evans (granted the rank of Lieutenant-Colonel with permission to wear the prescribed uniform) Capt (Bt Major) R L Guthrie (granted the rank of Lieutenant-Colonel) Capts D R Kilpatrick (granted the rank of Major) and G D Kettlewell (retains the rank of Captain)

ROYAL AIR FORCE

Capts G H Latham and G McK Thomas are transferred to the unemployed list

Parliamentary Intelligence.

HOUSE OF LORDS.

THURSDAY, JUNE 17TH.

Census Bill.

THE Census Bill was read a third time.

HOUSE OF COMMONS.

TUESDAY, JUNE 15TH.

Small-pox in Glasgow.

Mr. **NEIL MACLEAN** asked the Secretary for Scotland whether any of the cases removed to hospital as suffering from small-pox during the present outbreak in Glasgow had been vaccinated at any time during the past six months; and what were the ages of the cases, how many were vaccinated cases, how many unvaccinated, and in how many was the question of vaccination doubtful.—Mr. **MUNRO** (Secretary for Scotland) replied: 1. No cases have been removed to hospital who had been vaccinated within six months previous to the date of contracting infection. Twenty-nine persons who subsequently developed small-pox were vaccinated either in their own homes or in the reception houses after known exposure to infection—that is, between the date of contracting infection and the development of the disease. In 7 of these cases vaccination failed. In 22 the disease was in a modified form, except in the case of a child of 2 months, who had been exposed to infection at home for seven days before discovery and vaccination. 2. 186 cases of all ages have been vaccinated in infancy. The mortality among these has been 12 per cent. 168 of these cases and the whole of the deaths have occurred among persons over 16 years of age. 3. In 57 cases who had never been vaccinated the mortality has been 35 per cent., all but 6 being under the age of 15. 4. In 3 cases the primary vaccination was doubtful. One of these, an adult, died. These are included in the 186 vaccinated cases. Of the 186 previously vaccinated cases, 1 had been revaccinated in 1890, 5 in 1901, 1 in 1906, and 1 in 1916, but the two latter showed no evidence of successful revaccination. Among the group vaccinated in infancy only four were under 10 years and were mild and modified cases.

WEDNESDAY, JUNE 16TH.

National Hospital for the Paralysed and Epileptic.

Mr. **L'ESTRANGE MALONE** asked the Minister of Health whether he was aware that, owing to the financial position, the National Hospital for the Paralysed and Epileptic in Queen-square, W.C., was closing; whether he was aware that many other hospitals in London were in a similar condition; that many of these hospitals were making appeals to charity and displaying such notices as "Help us to keep open"; and whether, in view of the professed objects of the Ministry of Health and the repeated declarations of the Prime Minister and others concerning the new social conditions proposed to be introduced by the Coalition Government, he would consider the desirability of giving immediate State aid to such hospitals, which had hitherto relied on charity, or, alternatively, to nationalise the medical services, as had been successfully accomplished in Russia with considerable benefits to the working classes.—Dr. **ADDISON** replied: I am aware that the hospital in question and two other hospitals in London are contemplating closing in whole or in part, and the question of giving interim assistance to hospitals in serious financial difficulties is under consideration by the King's Fund. The position of many other London hospitals gives ground for anxiety, and I am considering what measures can be taken to meet the situation without prejudicing the voluntary principle and without losing the services of the voluntary workers, to whose coöperation I attach the greatest value. I have never been in favour of nationalising the voluntary hospitals, and the information available as to the sanitary condition of Russia has not led me to modify my views on this point.—Mr. **MALONE**: Would not the £3,000,000 being spent on tawdry finery by the War Office be better spent if it were appropriated to the hospitals?—Dr. **ADDISON**: That does not affect the question of the existence of the voluntary hospitals.

Tropical Diseases Hospital, Bath.

Mr. **WIGNALL** asked the First Commissioner of Works whether he was aware that the delay in the erection of huts at the Ministry of Pensions Hospital, Bath, for the accommodation of pensioners suffering from tropical diseases was causing inconvenience to the medical staff and unnecessary suffering to the men; whether he was aware that the huts, or sections of them, were delivered months ago; and whether he would take the necessary steps to have the huts erected without delay.—Sir A. **MOND** (First Commissioner of Works) replied: The huts in question were originally required for the accommodation of nurses who have since been housed elsewhere. It is now proposed, when funds are available, to utilise the huts for additional ward accommodation.—Mr. **WIGNALL**: Is the right honourable gentleman aware that all the arrangements are made for the reception of these sufferers, and that when the report came up last week complaining of the delay in completing the work, a strong resolution was passed?—Sir A. **MOND**: I am not aware of those facts. All that I know is the Ministry of Pensions have given the reply which I have just read.

THURSDAY, JUNE 17TH.

Hospital Accommodation for Neurological Cases.

Sir **HENRY HARRIS** asked the Minister of Pensions whether he was aware that there were more than 400 cases of men awaiting in-patient neurological treatment in London and the region immediately surrounding it; and whether, in view of the very serious results of delay and neglect in such cases he could state what steps the Ministry had taken to provide the additional accommodation required.—Mr. **MACPHERSON** replied: The number stated is approximately the number of cases awaiting treatment for the whole area covered by London and the eastern and south-eastern counties. Every effort is being made to obtain further hospital accommodation. There are many difficulties to overcome, but I hope that additional facilities may be available at an early date.

War Pensions Bill and Dependents' Appeals.

Mr. **HURD** asked the Minister of Pensions whether he had received representations from local pensions committees strongly urging that provision should be made in the War Pensions Bill to give a dependent the same right of appeal against refusal of pension on the grounds that the man's death was not due to or aggravated by service as was conceded to widows and children, and that Section 8 of the War Pensions (Administrative Provisions) Act, 1919, be extended to dependents; and whether, seeing that this concession, while throwing no undue pressure on the tribunal, would meet cases of considerable hardship which had been brought to the notice of the council of the association of local war pensions committees, he would say what action he proposed to take in this direction.—Mr. **MACPHERSON** replied: The answer to the first part of the question is in the affirmative. The proposal in the second part of the question will come up for consideration on the War Pensions Bill, which stands referred to a Committee. Perhaps my honourable friend will await the discussion upon it.

Alternative Pensions for Nurses.

Mr. **LEONARD LYLE** asked the Minister of Pensions whether alternative pensions were allowed to officers and not to nurses; whether these pensions permitted officers to be placed in the same financial position as they enjoyed before the war, plus an increase; if they were thereby benefited more than by the pensions ordinarily laid down, while nurses were not allowed to so benefit; and whether, in view of the feeling amongst nurses generally, he would reconsider the distinction with a view to a change being made.—Mr. **MACPHERSON**: Alternative pensions have not hitherto been allowed for nurses by the Royal Pension Warrants. The question of extending the benefits of this class of pension to nurses is at present under consideration, but I am not yet in a position to make any announcement.

Medical Re-examinations for Disability Pensions.

Captain **COOTE** asked the Minister of Pensions whether he was aware of the distress caused to disabled men by the long intervals which elapsed between the expiration of a period for which a pension was granted and their appearance before a medical board for further examination; that this distress was intensified by the delay in the re-issue of pension if such was recommended by the medical board and subsequently confirmed; and whether he would issue instructions that a medical board should give the man in such cases written announcement of their finding upon which he would be able to draw an advance of pension from his local committee.—Mr. **MACPHERSON**: It is the practice at present to arrange for medical re-examination of the men six or eight weeks in advance of the expiration of the current awards, and in any cases where the circumstances are such that a medical re-examination cannot be arranged in time to prevent an interruption of the pension arrangements are at once made to continue the expiring pension. Delay should not therefore occur. While I do not think that the proposal made by my honourable and gallant friend in the last part of his question is advisable, I am considering how best to meet any difficulty which may arise.

The Blind Welfare Committee.

Mr. **SEXTON** asked the Minister of Health whether, in view of the fact that the committee to consider the prevention of blindness was not to be composed entirely of experts, he would arrange for a representative of the National League of the Blind to serve on the committee, in view of the knowledge as to working class conditions such representative could bring to the deliberations of the committee —Dr ADDISON replied I am anxious not to increase the number of this committee unnecessarily Its deliberations will extend to various kinds of industrial occupations, and it will no doubt seek the assistance of those competent to speak as regards the conditions obtaining in these occupations so far as they come within the scope of the inquiry, and I have already decided to ask a representative of the trade unions to serve on the committee

Small pox in Glasgow

Mr ROBERT YOUNG asked the Secretary for Scotland whether he would draw the attention of the Scottish Ministry of Health to the fact that recent outbreaks of small pox in London, Liverpool, and other English towns had been limited to a few persons through the energetic action of the health officials of those towns and whether he would suggest to the Scottish Board of Health that they should make representations to the health officials of the city of Glasgow to the effect that the method so advantageously adopted in English cities should be followed in Glasgow at the present time, and in any future outbreak, in order that such outbreaks might not spread as the present outbreak had been allowed to spread —Mr MORISON (Lord Advocate) replied My right honourable friend is not aware that the measures taken in English towns for the control of outbreaks of small pox have been more efficient than those taken in Glasgow The Scottish Board of Health have from the beginning of the outbreak been in daily touch with the public health officials of Glasgow, and are satisfied with the measures taken to deal with the outbreak and to prevent the further spread of the disease later in the season Adequate arrangements have been made from the start for the hospital accommodation of cases, for the isolation of contacts and for the free vaccination of the general public

Employment of Women Before and After Childbirth

Mr ROBERT RICHARDSON asked the Secretary for the Home Department if he could state when it was proposed to introduce the Bill to give legislative sanction to the proposals regarding the employment of women before and after childbirth which were adopted at the Washington International Labour Conference —Dr ADDISON (Minister of Health) replied I have been asked to answer this question The British Official Representatives at the Washington Conference refrained from voting on this question The extent to which the British Government shall adhere to the recommendations of the Conference is at present under consideration The matters involved largely affect insurance questions, and they are now being carefully examined

Medical Fees in Workmen's Compensation Cases

Sir HERBERT NIELD asked the Secretary for the Home Department whether, seeing that the compensation payable under the Workmen's Compensation Act, 1906, had been considerably increased he would reconsider the scale of fees prescribed for, and payable to, medical referees and assessors appointed by the Secretary of State for services rendered under the Act, having regard to the fact that such fees, when prescribed, were upon an exceedingly low scale, the responsibility of the work, and especially in view of the present increased awards to applicants and the reduced value of the fees and taking into consideration that the medical fees under the National Insurance Act had been augmented consequent upon the increased cost of living —Mr SHORTT replied This question will be considered with due regard to all relevant circumstances after the Departmental Committee which has been inquiring into the working of the Workmen's Compensation Act, has reported

Threatened Invasion of Zymotic Disease

The House went into Committee on a Vote not exceeding £1 279 379 for expenses in connexion with embassies, missions, and consular establishments abroad and other expenditure chargeable to the Consular Vote

Mr BALFOUR (Lord President of the Council), in the course of a statement on the League of Nations, referred to the attempt to deal with the threatened invasion of zymotic disease from the East to the West, especially in Poland Typhus had raged both in Russia and in Poland, and our leading medical authorities were seriously alarmed as to what was going to happen in Central Europe in the coming winter They had done their best in the matter, they had acted through the Red Cross Societies and in addition, they had appealed to the nations forming the Union to provide such funds as were necessary for staying the plague The Polish Government by all accounts had spent money freely and with great public spirit and skill in the matter, but the common opinion was that their efforts were not sufficient, and it would be unfair to throw upon them the whole burden of acting as guardians of the health of the West without the West doing something to aid them in this all important task According to their experts £2,000,000 would be sufficient to slay the evil, and of that sum an immediate expenditure of £250 000 would be obligatory, or at all events of the greatest importance, if the best results were to be got Their appeal to the nations would be an appeal to their generosity, and he refused to doubt that when the appeal was made by the League of Nations to its component members it would receive an adequate response

FRIDAY, JUNE 18TH

Financial Position of London Hospital

Mr A T DAVIES asked the Minister of Health whether his attention had been directed to the financial position of the London Hospital, whether he was aware that Lord Knutsford, as chairman of the institution, announced that there were only sufficient funds in hand to pay the bills for eight weeks, and whether, in view of the financial straits to which this and similar institutions were reduced, the Ministry of Health would at once consider the question of assistance, especially in the poorer districts of the metropolis —Dr ADDISON replied I am fully aware of the position of the London Hospital, and I am considering what steps can be taken to assist this and other hospitals similarly circumstanced without prejudicing the voluntary principle

MONDAY, JUNE 21ST

Dentistry Bill

Viscount ELVEDEN asked the Minister of Health whether it was proposed to introduce legislation this session to carry out the recommendations of the Departmental Committee on Dentistry which reported in February, 1919 —Dr ADDISON replied Yes, Sir A Bill is now in course of preparation

Cost of the National Insurance Act

Lieutenant Colonel CROFT asked the Lord Privy Seal if he could now state what was the total cost of the National Health Insurance Act since its inception, and what had been the amounts paid for administration and in benefits respectively —Mr BONAR LAW replied The total cost of National Health Insurance from its inception to Dec 31st, 1919, was (as respects England and Wales) in round figures £162,000,000—namely contributions of employers and employed, £119 000 000, Exchequer grants, £43,000 000 The amounts paid for administration and benefits were £21,000,000 and £84 000,000 respectively For Ireland the total cost was in round figures £7,700,000—namely, contributions of employers and employed £5,200 000, Exchequer grants, £2,500 000 The amounts paid for administration and benefits were £1,500,000 and £3,700 000 respectively I have not yet received the figures for Scotland

TUESDAY, JUNE 22ND

Special Schools for Defectives

Major HILLS asked the President of the Board of Education if he would tell the House what progress had been made in the provision of special schools for physically defective and epileptic children under the Education Act, 1918 —Mr FISHER replied On July 31st, 1914, the number of special schools for physically defective and epileptic children was 102 At the present moment it is 171 In addition, the Board have under consideration upwards of 60 proposals from local education authorities and a few from voluntary bodies for the establishment of special schools, of which the greater number are open air schools for physically defective children

Remuneration of Part time Prison Medical Officers

Captain ELLIOT asked the Secretary of State for the Home Department if he would state what steps, if any, were being taken to improve the remuneration of part time prison medical officers, as these had received neither increase of salary nor bonus since the outbreak of the great war —Mr SHORTT replied The Treasury have now sanctioned an increase of these officers' remuneration, which, I hope, will prove satisfactory

URBAN VITAL STATISTICS

(Week ended June 19th, 1920)

English and Welsh Towns —In the 96 English and Welsh towns, with an aggregate civil population estimated at nearly 18 million persons, the annual rate of mortality, which had been 12 8, 11 6, and 11 1 in the three preceding weeks further fell to 10 6 per 1000 In London, with a population of nearly 4½ million persons, the annual death rate was 10 0, or 0 6 per 1000 below that recorded in the previous week, while among the remaining towns the rates ranged from 4 3 in Ealing 4 9 in Walthamstow, and 5 4 in Eastbourne to 16 9 in Blackpool 17 0 in Carlisle, and 19 0 in Bootle The principal epidemic diseases caused 236 deaths, which corresponded to an annual rate of 0 7 per 1000, and comprised 73 from infantile diarrhœa, 64 from measles, 46 from diphtheria 42 from whooping cough, 6 from scarlet fever, and 5 from enteric fever Measles caused a death rate of 1 8 in Leicester and in Wigan, 2·0 in Aberdare, and 2 4 in Newport (Mon) The deaths from influenza, which had declined from 216 to 86 in the five preceding weeks, further fell to 65, and included 14 in

Sheffield, 7 in London, and 4 in Manchester. There were 1705 cases of diphtheria, 1654 of scarlet fever, and 5 of small-pox under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 1722, 1642, and 4 respectively at the end of the previous week. The causes of 26 of the 3629 deaths in the 96 towns were uncertified, of which 7 were registered in Birmingham, 3 each in Stoke-on-Trent and Gateshead, and 2 in Liverpool.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2¼ million persons, the annual rate of mortality, which had declined from 18·4 to 12·7 in the six preceding weeks, rose to 13·3 per 1000. The 309 deaths in Glasgow corresponded to an annual rate of 14·5 per 1000, and included 11 from measles, 8 from infantile diarrhœa, 2 from diphtheria, and 1 each from small-pox and whooping-cough. The 73 deaths in Edinburgh were equal to a rate of 11·2 per 1000, and included 3 fatal cases of diphtheria.

Irish Towns.—The 136 deaths in Dublin corresponded to an annual rate of 17·1, or 0·9 per 1000 above that recorded in the previous week, and included 7 from whooping-cough, 4 from infantile diarrhœa, and 1 from diphtheria. The 112 deaths in Belfast were equal to a rate of 14·1 per 1000, and included 3 from infantile diarrhœa, and 1 each from measles, diphtheria, and whooping-cough.

Appointments.

Pedley, C. F., M.R.C.S., L.R.C.P. Lond., has been appointed Resident Medical Officer at Winsley Sanatorium, Wilts.

Prentice, A., M.B., Ch.B. Edin., Honorary Anæsthetist to the Metropolitan Ear, Nose, and Throat Hospital.

Saі, P., M.B., B.S. Lond., M.R.C.S., L.R.C.P. Lond., Director of Siriraj Hospital, Bangkok.

Williams, S., M.D. Lond., Medical Referee under the Workmen's Compensation Act, 1906, for County Court Circuit No. 31.

Certifying Surgeons under the Factory and Workshop Acts: Gunn, J. T., M.B., Ch.B. Edin., F.R.C.S. Edin. (Blackford); Lilley, E. L., M.R.C.S., L.R.C.P. Lond. (Leicester, West); Brown, J. P., M.B., C.M. Glasg. (Campbeltown).

Vacancies.

For further information refer to the advertisement columns.

Aberdeen, Rowett Research Institute in Animal Nutrition.—Physiologist. £400.

Bath, Royal United Hospital.—Res. M.O. £150.

Battersea General Hospital (Incorporated), Battersea Park, S.W.—Res. M.O. £200.

Belgrave Hospital for Children, Clapham-road, S.W.—H.S. £100.

Birmingham Children's Hospital.—Hon. Dent. S. Also Two Visiting Anæsth. and Jun. Anæsth., £75 and £50 respectively. Also Res. M.O. £150.

Birmingham General Hospital.—H.S.'s and H.P. Also Res. M.O. £155.

Bloemfontein (O.F.S.), South Africa, Municipality.—M.O.H. £800.

Bolingbroke Hospital, Wandsworth Common.—H.S. £150.

Bolton Infirmary and Dispensary.—Female Second H.S. £250.

Bradford, Odsal Sanatorium.—Res. M.O. £350.

Bradford Royal Infirmary.—Res. Surg. O. £250.

Brighton, Royal Alexandra Hospital for Sick Children.—H.S. £100.

Brighton, Royal Sussex County Hospital.—Jun. H.S. £130.

Bristol General Hospital.—Cas. H.S. £175.

Burnley, Victoria Hospital.—H.S. £250.

Canning Town Women's Settlement Hospital, Balaam-street, Plaistow, E.—Female Hon. Asst. P. Also Female Res. M.O. £150.

Central London Throat and Ear Hospital, Gray's Inn-road.—Hon. Asst. Anæsth.

Chichester, Royal West Sussex Hospital.—H.S. £200.

Colchester, Essex County Hospital.—H.P. £200.

Coventry Education Committee.—School Dentists. £400.

Croydon County Borough.—Female Asst. M.O.H. for Maternity and Child Welfare Work. £500.

Croydon General Hospital.—Jun. H.S. £150.

Dorset County Council.—Asst. County M.O. £500.

Dreadnought Hospital, Greenwich.—H.P. £100.

Dumfries and Galloway Royal Infirmary.—Res. H.S. £150.

East Suffolk County Education Committee.—Dental Surgeon. £500. Asst. School M.O.'s. £500.

Federated Malay States.—Radiologist. £840–£980.

Fulham Infirmary, St. Dunstan's-road, Hammersmith, W.—Third Asst. M.O. £300.

Galway, University College.—Prof. of Anat. £658.

Glasgow University.—Lectureship in Ophthalmology.

Gloucester County Asylum.—Jun. Asst. M.O. £300.

Gloucester, Gloucestershire Royal Infirmary and Eye Institution.—H.P. £175.

Hammersmith Parish.—District M.O. and Pub. Vac. £130.

Hendon Urban District Council.—M.O.H. £750.

Holt, Norfolk, Kelling Sanatorium.—Asst. Res. M.O. £450.

Hospital for Sick Children, Great Ormond-street, W.C.—Cas. M.O. £200. Also Med. Reg. and Path. £200.

Huddersfield Royal Infirmary.—Sen. H.S. £250.

Hull Royal Infirmary.—Asst. H.S. £150.

Isle of Ely County Council.—Clin. Tuberc. O. and Asst. M.O.H. and Sch. M.O. £500.

Johannesburg, South African School of Mines, &c.—Professor of Pharm. £1000.

King's College Hospital, Denmark Hill, S.E., Department of Dermatology.—Jun. P.

Leamington Spa, Warneford, Leamington, and South Warwickshire General Hospital.—Res. H.P. £200.

Leeds City.—Female Asst. M.O. for Maternity and Child Welfare. £500.

Leeds City Tuberculosis Sanatorium.—Res. Asst. M.O. £300.

Leeds Public Dispensary.—Res. M.O. £200.

Leicester Royal Infirmary.—Two H.S.'s £200.

Liverpool Stanley Hospital.—Res. P. and S. £150.

London County Mental Hospital Service.—Sixth and Seventh Asst. M.O.'s. £300.

London Jewish Hospital, Stepney Green, E.—Hon. P. in Charge of X Ray Dept.

Manchester, Ancoats Hospital.—H.P. £150. Also Two Jun. H.S.'s. £100.

Manchester, Baguley Sanatorium for Tuberculosis.—Third Asst. Res. M.O. £300.

Manchester Royal Infirmary, Roby-street.—Second Res. M.O. £100. Also H.S.'s. £50 first six months, £100 second.

Manchester University.—Lecturer in Anatomy. £500.

Middlesbrough Education Committee.—Sch. Dent. £400.

Miller General Hospital for South-East London, Greenwich, S.E.—Res. Cas. O. £150. Also H.S. £100. Also Orthopædic S. and Hon. P.

Newcastle-upon-Tyne, Hospital for Sick Children.—Sen. and Jun. Res. M.O.'s. £250 and £200 respectively.

Norwich City.—Asst. School M.O. and Asst. M.O.H. £560.

Portsmouth County Borough.—Asst. M.O.H. and Chief Tuberc. O. £500.

Prince of Wales's General Hospital, Tottenham, N.—Jun. H.P. £120. Also Hon. Asst. S.

Queen Mary's Hospital for the East End.—Hon. Dent. S.

Reading Education Committee.—Sen. Asst. School M.O. and Asst. to M.O.H. £600. Asst. School M.O. and Asst. to M.O.H. (Female). £500.

Rhondda Urban District Council.—Asst. School M.O. and M.O.H. £600.

Rotherham Hospital.—Jun. H.S. £150.

Royal Free Hospital, Gray's Inn-road, W.C.—H.P. and Second H.P. and Anæsth. £50 each. Also Hon. Anæsth. and Asst. S.'s.

Royal Westminster Ophthalmic Hospital, King William-street, West Strand, W.C.—Refractionist Assts. £100.

Rugby, Hospital of St. Cross.—Female Res. M.O. £200.

Ryde, Royal Isle of Wight County Hospital.—Res. M.O. £250.

St. Helens Education Committee.—Dentist. £450.

St. Mark's Hospital for Cancer, Fistula, and Other Diseases of the Rectum, City-road, E.C.—Hon. S. and Hon. Asst. S. Also H.S. £150.

St. Thomas's Hospital.—Asst. Radiologist. £500.

Salisbury General Infirmary.—H.S. and Asst. H.S. £200 and £150.

Seamen's Hospital, Albert Dock, Connaught-road, E.—H.S. £100.

Sheffield Royal Hospital.—Asst. Cas. O. £150.

Sheffield Royal Infirmary.—H.P. £150.

Southampton County Borough.—Asst. M.O.H. £600.

Stafford, Staffordshire General Infirmary.—H.S. £250.

West London Hospital, Hammersmith, W.—Asst. S.

Wigan Infirmary.—Hon. S., P., Asst. S., and Asst. P. Also Senior H.S. £250.

Wolverhampton and Staffordshire General Hospital.—H.S. £200.

Worcestershire County Council.—Asst. County M.O.'s and Sch. Oculist. £500 each.

The Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Stokesley and at Truro.

The Home Secretary gives notice of a vacancy for an additional Referee under the Workmen's Compenation Act for Circuit No. 31 (Neath and Aberavon County Courts). Applications should be made to the Private Secretary, Home Office, not later than July 14th.

Births, Marriages, and Deaths.

BIRTHS.

Clive Matthews.—On June 14th, at Eversfield-place, St. Leonards-on-Sea, the wife of L. Clive Matthews, L.D.S. R.C.S.E., of a son.

Cooke.—On Sunday, June 20th, at 59, London-road, Horsham, the wife of Clement Cooke, M.D. Lond., of a daughter.

Holman.—On June 21st, at Avenue-road, N.W., the wife of Frank Kay Holman, M.D., of a daughter.

Holmes.—On June 16th, at Harley-street, W., the wife of Gordon Holmes, M.D., F.R.C.P., C.M.G., C.B.E., of a daughter.

Kidman Bird.—On May 29th, at "Cooksditch," Faversham, Kent, the wife of M. W. Kidman Bird, F.R.C.S., of a son.

Phillips.—On the 18th June, at 2, Cavendish Court, Cavendish-square, W. 1, to Phyllis, wife of Hugh R. Phillips, M.D.—a son.

Tyrrell Gray.—On 12th June, at 28, Harley-street, W. 1, the wife of H. Tyrrell Gray, F.R.C.S., of a son.

MARRIAGES.

Haswell—Meek.—On June 14th, at Forest Church, Langdon Beck, Durham, William Cyril Haswell, M.B., to Evelyn Phebe, third daughter of J. M. Meek, M.A., of Coatham, Redcar.

James—Clarke.—On 21st June, at All Souls, Langham-place, Dr. Vincent C. James, son of Dr. and Mrs. Coram James, 114, Walm-lane, Cricklewood, to Mildred Ivy, widow of the late Lieut. Richard H. Clarke, M.C., of Liverpool.

McCarter—Jamison.—On June 3rd, at Rasharkin Presbyterian Church, William Harold Raphael McCarter, M.B., to Margaret Wallace, daughter of Revd. W. J. and Mrs. Jamison, The Bridge House, Kilrea.

DEATHS.

Inman.—On June 17th, suddenly, at Eglinton Park, Kingstown, Colonel A. W. P. Inman, late Army Medical Service, aged 65.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

MEETINGS OF SECTIONS
Monday, June 28th

ODONTOLOGY (Hon Secretaries—G Paton Pollitt, W Kelsey Fry, J Howard Mummery) at 8 P M

• *Discussion*

On "The Pathology of Dental Cysts, to be opened by Mr J G Turner, F R C S

The following Fellows and Members have promised to take part in the discussion —Mr F Colman, Mr E D D Davies Mr Dolamore, Mr F N Doubleday Mr M F Hopson, Mr B Hughes, Mr T B Layton, and Mr Herbert Tilley

SEAMEN S HOSPITAL SOCIETY, *at the London School of* Tropical Medicine, Endsleigh gardens N W

MONDAY, *June 28th —2* P M, *Lecture —Sir Leonard Rogers* Leprosy.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

FELLOWSHIP OF MEDICINE AND POST GRADUATE MEDICAL ASSOCIATION, in the Barnes Hall, Royal Society of Medicine, 1, Wimpole street, W (by permission of the Royal Society of Medicine)

Short Film Demonstrations illustrating Post Graduate Teaching in Medicine, Surgery and its Specialties will be given on June 29th, July 1st, 5th, 9th, and 12th, by the Fellowship of Medicine, in conjunction with the British Film Institute

TUESDAY, June 29th —5 30 P M, (1) Dr Fred H Albee Bone Graft (Inlay), Replacing Portion of Humerus (2) Dr Howard A Kelly Hysterectomy for Pyosalpinx (3) Dr Charles A Elsburg Laminectomy (Tumour of Spinal Cord)

THURSDAY —5 30 P M, (1) Major H C Marble Approved Methods Splints and Appliances for the Treatment of Bone and Joint Injuries (2) Dr Edward L Keyes, jun Radical Cure of Undescended Testes (3) Dr A Berger Repair of Fracture of Jaw

MEDICAL OFFICERS OF SCHOOLS ASSOCIATION, 11, Chandos street, Cavendish square, W

MONDAY, *June 28th —5 15* P M, *Lecture —Mr R W Tustin* Milk Supply (illustrated by the kinematograph and lantern slides)

LONDON HOSPITAL MEDICAL COLLEGE (SURGICAL UNIT), in the Units Lecture Theatre, London Hospital, E

Special Course of Lectures open to both Students and Post Graduates

Three Lectures on The Acute Abdomen—

WEDNESDAY, June 30th —4 P M, Mr R Howard (Lecture III)

WEST LONDON POST GRADUATE COLLEGE, West London Hospital, Hammersmith, W

MONDAY, June 28th —2 P M, Dr Simson Diseases of Women 2 P M, Mr B Harman Eye Department

TUESDAY —10 A M, Dr Robinson Gynæcological Operations 2 P M, Mr Banks Davis Diseases of the Throat, Nose, and Ear

WEDNESDAY —2 P M, Dr Owen Medical Out-patients 2 P M, Mr Addison Operations

THURSDAY —2 P M Mr D Armour Operations 2 20 P M, Dr A Saunders Visit to Medical Wards

FRIDAY —2 30 P M, Mr T Gray Operations 2 30 P M, Mr Addison Visit to Surgical Wards

SATURDAY —2 P M, Dr Beddard Visit to Medical Wards

Daily —10 A M, Ward Visits 2 P M, (June) In patient and Out patient Clinics and Operations, (July) In patient Clinics and Operations

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen square, W C 1

MEDICAL SCHOOL

MONDAY, June 28th —2-3 30 P M, *Out-patient Clinic Dr Collier* 3.30 P M, Dr Saunders Compression Paraplegia

TUESDAY, June 29th —2-3 30 P M, *Out-patient Clinic Dr* Grainger Stewart 3 30 P M, Dr Risien Russell Progressive Muscular Atrophy

WEDNESDAY, June 30th —2 P M, Dr James Taylor Ocular and Visual Conditions in Nervous Disease 3 15 P M, *Dr Gordon* Holmes Cerebro spinal Syphilis

THURSDAY, July 1st —2-3 30 P M, Out-patient Clinic Dr Farquhar Buzzard 3 30 P M, Dr Gordon Holmes Cerebro-spinal Syphilis

FRIDAY, July 2nd —2-3 30 P M, Out-patient Clinic Dr Gordon Holmes. 3.30 P M, Dr Collier Demonstration of Ward Cases

Fee for Post-Graduate Course £7 7*s* C M HINDS HOWELL, Dean

TIONAL HOSPITAL FOR DISEASES OF THE HEART, Westmoreland-street, W

MONDAY, June 28th —5 30 P M, Post-Graduate Lecture —Dr. Hamill High Blood Pressure

ING S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON)

A Course of Post-Graduate Lectures on Syphilis is being given by various members of the staff of King s College Hospital during the present year

FRIDAY, July 2nd —9 15 P M, *Prof A Whitfield* Treatment of Syphilis II *(Concluding Lecture)*

ALE LOCK HOSPITAL Dean street, W

MONDAY, June 28th, WEDNESDAY, AND FRIDAY —5 P M, Dr C Russ Demonstration of the Treatment of Gonorrhœa by Electrolysis

NORTH EAST LONDON POST GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N

MONDAY, June 28th —2 30 P M, Mr J B Banister Gynæcological

TUESDAY —9 45 A M, Lieut Col R H Elliot Selected Eye Cases and Operations 2 15 P M, Selected Cases —Mr E Gillespie Congenital Dilatation of the Colon 3 15 P M, Clinical Lecture —Dr A J Whiting Sinus Irregularity of the Heart 4 30 P M, Dr J B Banister The Present Position of the Treatment of Ante partum Hæmorrhage

WEDNESDAY —2 30 P M, Dr W J Oliver Dermatological

THURSDAY —2 30 P M, Mr N Fleming Ophthalmological Dr J Metcalfe Radiology

FRIDAY —2 30 P M, Dr C E Sundell Diseases of Children

SATURDAY —3 P M, Mr H W Carson Selected Surgical Cases

Daily —2 30 P M, Operations Medical and Surgical Clinics, &c

ST MARYLEBONE GENERAL DISPENSARY, 77, Welbeck street, Cavendish square, W

Post Graduate Course on Infant and Child Welfare

TUESDAY, June 29th —10 30 A M, Dr E Pritchard Practical Demonstrations on the Management and Feeding of Infants and Young Children—Lecture IX, Treatment of Minor Ailments

THURSDAY —3 P M, Lecture X, The Training of the Motor Functions of the Digestive System

UNIVERSITY OF LONDON

Advanced Lectures in Physiology to Students of the University and others interested in the subject

A Course of Eight Lectures on the Bio Chemistry of Sterols will be given in the Physiological Laboratory of the University, South Kensington, S W

TUESDAY June 29th —5 P M, Lecture VII, Mr J A Gardner

MANCHESTER ROYAL INFIRMARY POST GRADUATE CLINIC

TUESDAY, June 29th —4 30 P M, Lecture —Dr W Dyson Eczema

Communications, Letters, &c., to the Editor have been received from—

A—Mr W Abbatt, New York, Lt Col A Alcock, I M S, Lond Sir F W Andrewes, Lond

B—Mr H W Bayly, Lond British Association for the Advancement of Science, Lond Dr P Bartholow, New York, Surg Gen W C Braisted, U S N, Washington Dr H Blake, Great Yarmouth, Sir J Byers Belfast Mrs C Brereton, Lond, Dr J S Bury, Manchester, British Hospitals Association, Lond, *Sec of*, Dr G Blacker Lond Dr O C Bradley, Edinburgh

C—Dr C Coombs Bristol Clerical, Medical and General Life Assurance Society, Lond, Mr G W Clark Plymouth Messrs Cornish Bros Birmingham, Dr E P Cumberbatch, Lond, Dr E L Collis Cardiff, Mr H Curtis, Lond Cambridge University Press, Lond

D—Department of Scientific and Industrial Research, Lond, Dr V Dickinson, Lond Dr G K Dickinson, Jersey City, Dr J T R Davison, Buenos Aires, Dr S Davies, Lond, Dr H Drinkwater, Wrexham

F—Mr G E Fussell, Lond, Mr W R Fairbrother, Lond, Dr W Fletcher, Kuala Lumpur

G—Mr R G Groom, Lond Sir J D Grant, Lond General Medical Council Lond, Prof A D Gardner, Oxford Dr J Goldberger, Washington Mr P Gosse, Lond Great Northern Central Hospital, Lond

H—Dr J A Hanslow, Lond Dr P Hamill, Lond, Home Office, Lond

I—Industrial Fatigue Research Board, Lond, Insurance Committee for the County of London, Incorporated Society of Trained Masseuses, Lond

J—Dr R Jardine, Glasgow

K—Mr G L Keynes Lond, Dr H Kohn Berlin King s College Hospital Medical School, Lond, Sec of, King Edward s Hospital Fund for London, Hon Secs of

L.—League of Remembrance, Lond Miss E Lowry, Lond, Lycée Jaccard Lausanne Dr E B Leach, Manchester, Dr C E Lakin, Lond

M—Ministry of Health, Lond, Medical Supply Association, Lond, Miss Norah March Lond Medical Officers of Schools Association Lond, Hon Sec of Middlesex Hospital Medical School, Lond, Sec of, Ministry of Pensions, Lond, Dr J C McClure, Lond Dr C S Myers Lond

N—Mr H B Nichols, New York, Mr R Norrie, Dundee, North-East London Post-Graduate College National Safety Council, Chicago

O—Mr C W O Donoghue, Lond

P—Miss E C Phelps, Lond, Professional Classes War Relief Council, Lond, Panel Committee for the County of London Mr J H Parsons, Lond

R—Dr C S Redmond, Athy, Royal Medical Benevolent Fund, Lond, Sec of, Ranyard Nurses, Lond Dr J D Rolleston, Lond Miss M E Rowell, Lond, Dr W C Rivers, Barnsley, Mr J Reidpath, Crawley Down, Royal Society, Lond

S—Messrs Straker and Crane, Lond Dr S Samuel, Leeds, Messrs W B Saunders Co, Lond, Société des Sciences *Médicales et Biologiques de* Montpellier Society for the *Prevention of Venereal Disease*, Lond Serbian Red Cross in Great Britain, Lond, Dr C H Savory, Lond

T—Dr J Tatham, Oxted, Mr A M Towndrow, Lond

V.—Village Centres Council, Andover

W—Lord Willoughby de Broke, Paris, Dr S A K Wilson, Lond Messrs Watson and Sons, Lond Dr K M Walker, Lond Mr S A Walton, Lond West London Post-Graduate College, Mr C B Wilson, Lond, West London Medico-Chirurgical Society

DEATH OF A TRANSVAAL DOCTOR —Dr. H. Scott Russell, a highly esteemed citizen of Klerksdorf, Transvaal, died on April 30th from double pneumonia, having been ill only seven days Dr. Russell had practised in Klerksdorf for over a quarter of a century, and was a member of many public bodies, chief of the local Caledonian Society, and a prominent Freemason He was once a municipal councillor, and was well known as a public benefactor and a friend of the poor

Notes, Short Comments, and Answers to Correspondents.

SOLUBLE LEAD IN CASSEROLES.

BY HELEN MASTERS, B.SC.,
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ATTENTION has already been drawn in the columns of THE LANCET[1] to the fact that casseroles made of glazed pottery ware sometimes yield appreciable amounts of soluble lead when treated with dilute solutions of organic acids. At the time when the former observations were made casseroles were rather a scarce commodity and those obtainable were chiefly of French make. During the last few months, however, casseroles have been coming on to the market in increasing number and variety, and as the presence of soluble lead in these vessels appears to be of some importance from the point of view of public health, further experiments have been made and specimens of several different makes of casserole examined.

In this country there is no standard test for the examination of glazed ware in the finished condition, but in Germany the official test is made by boiling a 4 per cent. solution of acetic acid in the vessel for half an hour; the sale of cooking utensils which yield any lead when thus treated is prohibited. In actual practice acetic acid is used for cooking purposes chiefly in the form of vinegar, and then, in this country at any rate, usually only in small quantities; whereas citric acid and also malic acid occur in a number of different fruits and vegetables which are often cooked in casseroles.

The acidity of a number of fruit juices is given by Leach[2] and expressed as citric acid; this acidity varies from 0·5 to 5·0 per cent. On this basis it was thought that if the test were made with a 1 per cent. solution of citric acid instead of with a 4 per cent. solution of acetic acid, the conditions would approximate more closely to those met with in practice. Some previous observations made with the two acids showed that the amount of lead extracted with 1 per cent. citric acid was greater than that extracted with 4 per cent. acetic acid. A few experiments made with malic acid gave results similar to those obtained with citric acid.

The Experiments Described.

The vessels examined were made of pottery ware, in some cases glazed on the inside only, and in others glazed both inside and out. Experiments had previously been made with casseroles of fireproof china, and these were found to be lead-free.[3] The casserole was nearly filled with a measured volume of the acid solution, just sufficient margin being allowed for boiling. Under these conditions it was assumed that the whole of the internal surface of the vessel would come into contact with the acid, and the area thus exposed was calculated from the internal dimensions of the vessel. The casserole was covered with its lid and the solution was brought to the boil, and allowed to boil gently for half an hour. The amount of lead in the solution was then determined colorimetrically by precipitation as sulphide. If no coloration, or only a very slight coloration was observed when a portion of the solution was tested, the solution was concentrated to a small volume and again tested.[4]

Control experiments were made from time to time to ensure that the citric acid solution was lead-free. In one or two cases where the amount of lead yielded was considerable, the lead was also determined gravimetrically, by precipitation as sulphate, and this method gave results which confirmed those obtained colorimetrically.

The Results Discussed.

The results have been expressed as milligrammes of lead monoxide per square decimetre of the glaze, but in order that the amounts of lead extracted may be compared with the quantities found in contaminated waters, or other substances containing lead, the results are also given as parts of lead per 100,000 of the solution. The apparent discrepancy, suggested by a comparison of the two series of results, is entirely due to the fact that the vessels examined were not all of the same shape and varied from 100-1200 c.cm. in capacity; the ratio of the internal surface to the capacity is greater in the smaller vessels than in the larger. This ratio is also, to some extent, dependent on the shape of the vessel—i.e., the internal surfaces of two casseroles of the same capacity are not necessarily equal. The results are shown in Table I. Casseroles of the same make are indicated by the same initial letter. D and E were from the same makers, but D were glazed both inside and out, and E were glazed inside only; the glaze did not appear to be quite the same in the two cases.

TABLE I.

—	Mg of PbO per sq. dm of glazed surface.	Parts of lead per 100,000 of the solution.	—	Mg of PbO per sq. dm of glazed surface.	Parts of lead per 100,000 of the solution.
French casseroles (A)			D_1	1·7	1·5
A_1	4·2	8·0	D_2	0·85	0·7
A_2	8·1	10·0	D_3	2·7	1·7
A_3	4·2	3·2	E_1	17·4	13·0
A_4	6·6	7·5	E_2	2·1	1·2
A_5	2·0	1·0	E_3	19·0	20·7
English			E_4	16·1	10·0
(B.C.D.E. & F).			F	Nil.	Nil.
B	0·28	0·22	Dutch (G).		
C_1	Trace	—	G_1	1·0	0·5
C_2	Nil.	Nil.	G_2	2·8	1·7

The results indicate that the use of a glaze containing lead in a more or less soluble form is widespread and is not confined to one country or to one make. Out of the 18 casseroles for which figures are given in the table, only 3—viz., C_1, C_2, and F—can be classified as free from soluble lead, and these were sold by the makers as "leadless glaze." This description suggests that some of the manufacturers are alive to the possible risks attached to the use of a lead glaze, but the fact that such a description is considered necessary might also be taken as further confirmation of the view that the use of a leadless glaze is the exception and not the rule.

There is considerable variation in the amount of lead extracted from different specimens of the same make of casserole. This may be partly due to faulty mixing of the glaze, but it is also probable that the resisting power of the glaze to the action of dilute acids is largely dependent on the temperature at which it is "fired," as well as on the uniformity of the surface and its freedom from small cracks or flaws. It is to be hoped that E_1, E_3, and E_4 are to be regarded as exceptions, and that normally the results obtained would approximate to those obtained with E_2. Two other casseroles of this make, E_5 and E_6, were used for the experiments described below. The results obtained with these vessels (see Table II.) are more in conformity with that obtained for E_2 than with those obtained for E_1, E_3, and E_4. On subsequent treatment with 1 per cent. citric acid E_6 gave 1·7 mg. of lead monoxide per square decimetre of glazed surface. E_5 cracked in the first experiment, so could not be further tested. On the other hand, it is only fair to state that E_4 was purchased at a different time from the other vessels of this class, and was not obtained from the same retailer, so that it seems unlikely that it came from the same batch as E_3 and E_1.

Even if results of the order obtained with the E_1, E_3, and E_4 are to be regarded as exceptional, there is no means of knowing when and how frequently such exceptions are likely to occur. At the time of writing other specimens of this make of casserole are not available, so this matter cannot be dealt with further at present. The glaze of E_1 showed marked colour changes after treatment with the acid solution, but these changes were not observed with E_3 and E_4, though the glaze in these cases presented rather a roughened appearance. As a general rule the appearance of the glaze was very little affected at first, but if the treatment was repeated several times the glaze to some extent lost its gloss and sometimes became slightly iridescent, but its appearance did not suggest that the casserole had been subjected to anything more than fair wear and tear.

The results given in Table I. are in all cases those obtained for the first treatment with the acid solution, but if the experiment is repeated several times it is found that, if an appreciable quantity of lead was extracted by the first treatment, it is also extracted by each of the subsequent treatments. Although in some cases the first two or three treatments may suggest that the amount of lead extracted is decreasing, the amount often increases again if the treatments are continued and, with the exception of those cases where the amount of lead at first extracted was very small, no indication was obtained that a stage would be reached when all the soluble lead would have been extracted. In the case of E_1 and E_3 the amount of lead extracted in the second treatment was even greater than in the first, but E_4 gave rather less.

Experiments with Fruit and Vegetables.

In order to obtain a more exact idea of the quantity of lead which might be extracted during cooking, a few experiments were made in which fruit and vegetables were cooked in the casseroles 100 g of the raw material were used for each experiment The cooked food was evaporated to dryness in a porcelain dish and, after the addition of sulphuric acid, ignited The sulphated ash was extracted with ammonium acetate and the lead in the filtrate determined colorimetrically A control experiment was made with the raw food material and all the reagents used in the test experiment As in this case the area of glazed surface exposed could not be readily calculated, the results are given as milligrammes of lead per 100 g , the raw material—and this also represents parts of lead—per 100,000 With the exception of E_1 the casseroles used in these experiments were new ones which had not received any previous treatment

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[1] THE LANCET, May 24th, 1919 (p. 905), June 7th, 1919 (p. 1002), May 15th, 1920 (p. 1078).

[2] Leach: Food Inspection and Analysis (2nd edition).

[3] See Masters, The Analyst, May, 1919, p. 615.

[4] For further details of the method employed see "Applied Chemistry," Tinkler and Masters (Crosby Lockwood).

The Results Compared

In comparing the results of Table II with those of Table I it should be noted that the conditions in the two series of experiments are not identical *The acidity of the* fruit or vegetable is, in some cases, greater than that of the citric acid solution, but whereas in the first experiments the whole internal surface of the casserole was in contact with the acid solution, this was not the case when fruit or vegetable was used, a portion only of the surface, in some cases practically only the bottom of the vessel, was in contact with the food material in these experiments It would, of course, be possible nearly to fill the casserole with fruit or vegetable, and this is often done in practice, but for experimental purposes the difficulties attendant on evaporating and igniting a large bulk of food material had to be taken into consideration

TABLE II —*Lead Extracted from Casseroles by Fruit and Vegetables.*

Casserole	Fruit or vegetable 100 g	Acidity (as citric acid) per 100 g of raw material	Mg of lead extracted
A_6	Tomato	0 37	1 8
E_5	Lemon pulp and juice	2 0	0 75
E_6	Lemon juice	3 7	2 9
(E_1)	" "	3 7	25 0
A_7	" "	3 7	3 4
A_8	Rhubarb stalks	1 1	1 0
D_4	" "	1 1	1 5

If due allowance be made for these differences, the results given in Table II may be regarded as confirming those of Table I The variations observed in the amount of lead extracted from different specimens of the same make of casserole with citric acid are also shown with some of the casseroles in Table II

The actual amounts of lead extracted from the casseroles are not in themselves very great, but as water containing 1/10 gr. per gallon (= 0 14 parts per 100,000) or even 1/20 gr is stated to produce injurious effects,[6] the quantities of lead obtained in the experiments can hardly be regarded as negligible; the results demonstrate that the possibility of food cooked in these casseroles becoming contaminated with lead is by no means an unlikely one, especially when they are in regular use The regulations at present *in force with regard to the use of lead glaze* appear to be chiefly directed to safeguarding the worker who has to prepare and apply the glaze, and the possibility that the general public might suffer through its use on cooking utensils does not appear to have been sufficiently recognised In the interests of public health it would seem advisable that the use of a lead glaze for cooking utensils should be prohibited, but if this is not feasible, then, at any rate, a standard test might be adopted, to which the vessels could be submitted before coming on to the market

The Advantages of a Leadless Glaze for Cooking Apparatus

It might be suggested that the use of a leadless glaze would increase the cost of production, but a comparison of the retail prices charged for the casseroles used in the experiments showed that the leadless glaze casseroles worked out cheaper than the others For example, three casseroles were bought on the same day from the same retailer, the price of each casserole being 2*s* 6*d* The capacities of the vessels were as follows French casserole (A) = 750 c cm ; English casserole (E) = 650 c cm , leadless glaze casserole (C) = 1250 c cm The price charged for a French casserole having a capacity of 1250 c cm was 3*s* 3*d* The appearance and finish of the leadless glaze casseroles were not considered to be in any way inferior to those of the other makes Specimens of both C and F have been in use in the kitchens of the department for some months, and, so far, have given no cause for complaint

In the event of a standard test being adopted it would be advisable to insist that specimens of each batch should be examined, as single tests cannot be regarded as reliable, in any case this method of dealing with the difficulty should be regarded only as an unsatisfactory alternative to the compulsory use of a leadless glaze for all cooking ware

Amongst the latest additions to the materials used for cooking utensils is fireproof glass Specimens of two different makes of this glass have been examined and yielded no soluble lead when treated as described above The vessels were also tested as regards their powers of withstanding sudden changes of temperature and appeared to be satisfactory in this respect It seems possible that the housewife may find in the future, as the scientist has done in the past, that glass is capable of many modifications to suit a variety of different purposes

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[6] Notter and Firth Theory and Practice of Hygiene (3rd edition)

PUBLIC HEALTH IN JAMAICA.

THE population of Jamaica, as estimated for the year 1918, was 895 578, and the birth and death rates were 34 1 and 33 0 per 1000 respectively , the former ratio is exactly the same as for 1917 , the death ratio is considerably higher than in any of the preceding four years, during which it ranged between 20 4 in 1914 and 26 9 in 1917 , the marked increase in 1918 was due to influenza It is much to be regretted that 68 6 per cent of the births registered were illegitimate, and that "this phase of the country's life continues to show an upward and unsatisfactory tendency " For the fifth year in succession the record of the previous highest rate has been broken ; the lowest rate was in St Andrew's parish (60 12), while seven parishes had ratios over 70 per cent and Port Royal had 79 41 per cent The total number of illegitimate births was 20,990 The general death rate of 33 0 per 1000 was much exceeded in several parishes in St Andrew it was 43 6, in St Catherine 41 3, and in St Thomas 40 9, being in each case considerably higher than the birth rate , the small parish of Port Royal had the low ratio of 11 0 per 1000 Influenza caused 5038 deaths, in addition to 839 due to pneumonia consequent on the former disease , but it is considered by Mr David Balfour, the Registrar General, that the epidemic was responsible for a great many more deaths than were actually registered as having been caused thereby The chief fatal diseases (besides influenza) were fevers, not otherwise defined (5234), convulsions (2079), phthisis and pulmonary tuberculosis (1703), dropsy (1222), and "old age" (1829) It is, however, unfortunately the case that in 72 9 per cent *of the deaths registered during the year the causes were not medically certified*

HOSPITALS AND DISPENSARIES IN BENGAL

DURING 1918 there were 760 medical institutions of various kinds working under the Bengal Government, of which 22 were in the city of Calcutta At these latter hospitals and dispensaries the number of patients treated amounted to 439,806, of whom 34,703 were in patients , this shows an increase on the previous year in the number of in patients, due chiefly to influenza The total accommodation available was for 2438 patients, being an increase of 111 beds over that of the year preceding , but most of these were in temporary buildings improvised to meet the emergency of the influenza epidemic The superintendent of the Campbell Hospital points out (as is often recognised at home) that there is great need for some home or refuge for incurables, who use up *accommodation in the hospitals that would be more suitably* occupied by surgical patients and cases of acute disease More nurses are required, especially *at the Campbell Hospital* just mentioned, "*where the real nursing is done by students helped by ward coolies and other menials, supervised by the nurse in charge*" During *the influenza epidemic* 16,784 cases *were treated in the city hospitals , of* these 2777 were in patients, with 849 deaths Cholera also prevailed to some extent, 843 cases being admitted to hospital, of whom 207 died Sir Leonard Rogers's treatment is in use in all the hospitals, and the results are steadily improving Between February and September there was some plague in the city, 77 cases being treated in hospital, with 46 deaths

In Bengal, outside of Calcutta, as many as 6,368 171 persons received medical aid at the different hospitals and dispensaries (numbering 738), of which total 479,957 were treated in special hospitals for the police, public works, and other Government departments, railway hospitals, &c , and the remainder in various charitable institutions Nearly one third of these patients (1,877,753) *were cases of malaria,* being 258,514 more *than the number treated for this disease* in 1917 The number *of cases of influenza was* 134,057 , *of* these 1526 *were in patients, amongst* whom were 339 deaths Colonel J. K Close, I M S , who presents this report as *Officiating* Surgeon General with the Government of Bengal, summarises the financial position of the various hospitals and dispensaries and the structural improvements that have been or are in course of being undertaken The long-expected increase of pay for sub assistant surgeons was granted, with effect from June 1st last, the new scale being Rs 50 per month, rising to Rs 120 It is to be hoped that this will remedy a long-existing grievance It is gratifying to note the large sums provided by local subscriptions, especially the liberality of the Raja Roy Bahadur, of Lalgola, in support of the Berhampore Hospital, and of Raja Acharji Bahadur and other noblemen and gentlemen towards the Mymensingh Sadar Hospital rebuilding and extension fund. This liberality can only be described as princely.

WANTED, A HOME.

To the Editor of THE LANCET.

SIR,—A patient of mine, a lady, is suffering from disseminated sclerosis, she is practically confined to bed. Could any of your readers help me to find a home for her either in a nursing-home or in some doctor's or nurse's house? She can only pay 3 guineas a week. It must be in London. I am, Sir, yours faithfully,

M.D.

June 11th, 1920.

FOOD CONDITIONS IN AUSTRIA.

THE following interesting paragraph is taken from the *Economic Review* (June 16th):—

> Dr. Loewenfeld, an Austrian Secretary of State, has stated in the National Assembly that he hopes to be able to increase the rations, which for some time have been reduced, to their old level. The flour ration is to be increased immediately, and the bread ration in the near future. In any case, Austria may count upon an improvement in the conditions of existence. (*Neue Freie Presse*, May 15th.)

Hitherto we have heard little else than that famine conditions prevailed in Austria with a probable outlook of food deficiency diseases, and delegates were sent out from our scientific staffs, of which Dr. Harriette Chick was principal, with the view of pointing out the importance of including in the diet, as far as possible, accessory food factors. Humanity will welcome the relief that is promised in the above statement.

THE RANYARD NURSES.

THE nursing branch of the Ranyard Mission supplies nurses for the sick poor in their own homes in various parts of London, and according to the report for the year ending 1919 there were nursed during the year 395 maternity, 4430 medical, and 5617 surgical cases. The total number of visits paid by nurses was 221,198 and by sisters 5260. At minor ailment centres and dispensaries 211,916 visits were made, and the home visits to patients attending centres and dispensaries amounted to 1299. The society is supported by voluntary contributions, by grants from public bodies, and by local payments towards the cost of the nurses in the districts, but for the year under notice there is a deficit on the nurses' fund of £2800, largely due to a necessary increase in the salaries. The equipment and maintenance of a nurse costs roughly £140 a year. Subscriptions should be sent to Ranyard House, 25, Russell-square, W.C. 1, or to Lord Kinnaird, the treasurer, c/o Messrs. Barclay and Co., 1, Pall Mall East, London, S.W. 1.

DEMORALISATION BY KINEMA?

THE question of the kinematograph and its influence on the minds of children is brought to the fore by a case of the suicide of a 15-year-old boy at Ovingdean, near Brighton, the son of a coastguard. He was left in charge of the home and a little brother and sister, and on the parents' return he was found dead with a wound in the chest. He was nude except for a pair of pants and socks, and the big toe of the right foot was hitched in a piece of string attached to the trigger of a miniature rifle, which had been fastened to a chair, and on a paper were the words, "Good-bye all, Harry." No cause for suicide could be suggested, but the father said that his son went to the "pictures" every Saturday and that he read a good deal. The coroner, Mr. G. Vere Benson, said that he had come across cases in which boys had undoubtedly taken their own lives, either intentionally or accidentally, through imitating what they had seen at the kinemas. No particular picture or story was known to have inspired this boy, but it seemed probable that he got his obsession from that source. It will be generally agreed that no picture should be allowed to be displayed nor stories allowed to be printed and sold which are likely to be detrimental morally. The present censorship deals with offences against conventional respectability, but it is a more difficult problem to prevent films which may be of unfortunate influence to unstable minds. In this case the coroner regarded the lad as unbalanced by excitement, and a verdict of suicide during temporary insanity was returned. In Germany the censorship—abolished in the early days of the revolution—was recently reimposed. Films shown at performances to which young people under 18 are admitted are to be banned if they are considered likely to have a harmful effect on the moral, intellectual, or physical development of adolescents, or to cause excessive emotion. "Children under six are to be excluded from all performances" is the concluding sentence in an interesting note from the *Times* Correspondent in Berlin.

AN APPEAL FOR HOMELESS CHILDREN.

IN connexion with the Founder's Day celebrations Dr. Barnardo's Homes, which will be held on June 2 Barkingside, Essex, an appeal is being made for half-c "to feed the largest family in the world." Like all cha institutions the financial needs of Dr. Barnardo's have increased heavily in consequence of the war, an 7300 children to feed the responsibility of the manag is consequently very great. These homes have responsible for rescuing something like 89,000 ho children, and during the war nearly 11,000 Barnard were fighting in the navy or army. Half-crowns sh sent to the honorary director, 18 to 26, Stepney-cau London, E. 1.

THE EXTRA PHARMACOPŒIA OF MARTIND AND WESTCOTT.

THE new edition, published this week by H. K. Le Co., Ltd., of Vol. I. of the Extra Pharmacopœia by Mar and Westcott will be welcomed because since the las of five years ago much has happened in pharma pharmacology, and considerable additions and alte have been called for consistent with the well-known d ments arising out of the great war. We understan Vol. II., dealing mainly with analytical, bacteriologi laboratory questions generally, will be issued shortl new issue is remarkably up to date, summarising n the altered position of affairs in many directions of i to the consultant and general practitioner, wh position of the pharmacist, particularly in regard manufacture of those medicaments the supply of hitherto was from abroad is fully set out. There are i ing features in this new edition which invite later co The bibliography relating to the records of exam treatment published in medical journals is thorough and alone affords a valuable source of reference to men.

THE Gloucestershire Branch of the British Re Society has presented to the county their V.A. pital, Standish House, for the treatment of tub patients. Ex-Service men are to have preference ov candidates for admission.

THE Students of the Royal Free Hospi arranging a fair, to be held at the hospital on July 10 of the Hospital Appeal Fund. There will be various en ments, including a Thé Chantant, and stalls for th garden and dairy produce, lingerie, jumpers, and ho ware. Any offers of help will be most gratefully r and should be sent to Miss Longbottom at the Ro Hospital, Gray's Inn-road, London, W.C. 1.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, TINDALL, AND COX, London.
- War against Tropical Disease. By A. Balfour, M.D., Dir Chief of the Wellcome Bureau of Scientific Research. 12s. 6d.
- Mental Deficiency (Amentia). By A. F. Tredgold, M.D. Pp. 531.
- The Mycetozoa: Parasitic Mycetozoa in Tumours. By J. Clarke, M.B. Lond., F.R.C.S. (Part V. of Protozoa and Pp. 138. 15s.
- Surgical Therapeutics and Operative Technique. By E English edition in collaboration with H. Spencer-Bro Vol. III., Regional Surgery (continued): Operations Abdomen. Pp. 811. 45s.

BALE, JOHN, SONS, AND DANIELSSON, London.
- *Malaria at Home and Abroad.* By S. P. James, Lie Colonel, I.M.S., retired. Pp. 234. 25s.
- Air Sickness: its Nature and Treatment. By Pro R. and Prof. R. Moulinier. With Preface by Dr. V. Pac Introduction by Wing Commander Martin Flack, M.B. lated from the French by J. R. Earp, M.R.C.S. Pp. 96.

CHURCHILL, J. AND A., London.
- Pharmacology. By D. Cow, M.D. Pp. 132. 7s. 6d.
- Dentistry. By B. Underwood, M.B., B.S. Lond. Pp. 16.
- A Manual for Midwives. By C. N. Longridge, M.D. Vict., Banister, M.D. Camb. 3rd ed. Pp. 346. 7s. 6d.

EVANS BROS., Montague House, Russell-square, W.C.
- The Science of Eating. By Alfred W. McCann. Pp. 408.

FROWDE, HENRY, AND HODDER AND STOUGHTON, London.
- *Plastic Surgery of the Face. Based on Selected Cases* Injuries of the Face, including Burns. By Major H. D. R.A.M.C., and Others. Pp. 408. £3 3s.
- *Studies in Neurology. By H. Head, M.D., F.R.S. and* Two vols. Pp. 862. £3 3s.

HEINEMANN, WILLIAM, London.
- Venereal Diseases: their Clinical Aspect and Treatment. an Atlas of 106 colour and 21 half-tone illustration J. E. R. McDonagh, F.R.C.S. Pp. 419. £3 3s.
- Selected Lectures and Essays, Including Ligaments, their and Morphology. By Sir John Bland-Sutton. 4th ed. 15s.

MACMILLAN AND CO., London and New York.
- The Treatment of Syphilis. By A. S. Baketel, M.D. Pp. 1
- Our Nervous Friends: Illustrating the Mastery of Nerv [illegible]ryoll, M.D. Pp. 258. 12s.

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